

T H E
H I S T O R Y
O F
M E D I C I N E;
A N D

A REVIEW OF, AND OBJECTIONS TO,
THE PRESENT PREVAILING
THEORIES on FEVERS.
TO WHICH ARE ADDED,
OBSERVATIONS ON DIÆTETICS.

By SAMUEL DAVIDSON, SURGEON.

——— *Si quid Novisti rectius istis
Candidus imperti, si non, his uteri mecum.*

HOR.

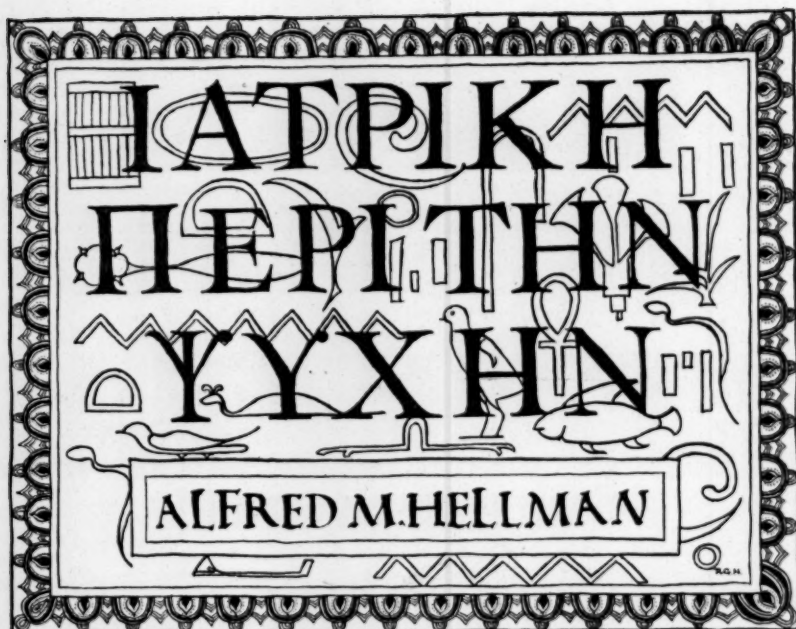
——— *Præjudicata opinio judicium obruit.*

PHÆD.

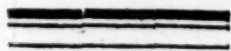
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1791.



DEDICATION.



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Dr ANDREW DUNCAN,

PHYSICIAN TO HIS ROYAL HIGHNESS THE PRINCE
OF WALES AND THE PUBLIC DISPENSARY,

PROFESSOR OF MEDICINE IN EDINBURGH, AND
MEMBER OF THE ROYAL SOCIETIES OF MEDICINE
OF PARIS, COPENHAGEN, EDINBURGH, &c.

IN TESTIMONY OF THAT RESPECT HE HAS FOR HIS
ABILITIES AS A PHYSICIAN,

AND OF THAT ESTIMATION WHICH HIS BENEVOLENCE
AND GENEROSITY ENTITLE HIM TO AS A MAN,

THIS VOLUME IS HUMBLT INSCRIBED,

By his quondam Pupil,

And most obedient and humble Servant,

The AUTHOR.

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as they came too late for Insertion.*

ADVERTISEMENT.

PERHAPS an apology is necessary to the public, for offering any further remarks on a subject that has already been so ably treated of by many eminent authors ; but my intention in publishing the following pages is to exhibit, in a concise and perspicuous manner, not only my own sentiments and opinions concerning the theory of fevers, but also to shew the opinions of the first medical characters that have appeared, on a branch of science so important and interesting to mankind in general ; and I hope they will be found not altogether unworthy the attention and future enquiry of the young practitioner, to whom alone they are chiefly directed.

S. D.

THE HISTORY OF THE
DUBLIN UNIVERSITY

OF THE
UNIVERSITY OF DUBLIN
FROM THE FOUNDATION
TO THE PRESENT
TIME
BY
JAMES WATSON
OF THE UNIVERSITY OF DUBLIN
IN TWO VOLUMES
VOL. I.
LONDON
PRINTED BY J. JOHNSON, ST. PAULS CHURCH-YARD
1791

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INTRODUCTION.

THE study of medicine must have been nearly coeval with the existence of man. To trace it from its rise, in its progress and improvements, must afford both pleasure and instruction to a philosophic and inquisitive mind. It will be a subject of curiosity to know these, and to perceive the gradual advancement of the human mind, by their beginning with a few simple things, and by degrees making these more complex, till they have acquired that intricacy which leads to the method of curing diseases.

According to history, diseases began to make their appearance soon after the fall; and attempts to cure them would be as early. To those who are acquainted with anatomy, it will not be surprising that diseases began so soon; but rather that the human system, formed with so much skill, should ever be free from them. Both sacred and profane history admit, that diseases were early; and indeed it is easy to see that this must have been the case, for their food would then be very precarious; sometimes they would have too much, and live intemperately; at other

times they would probably want for a long time, so as to be almost starving. Besides, they would use violent exercise to acquire it; and the very state of the air being so variable, sometimes impregnated with vapours, and at other times free from these things, that mankind could not remain long unacquainted with diseases. Hence rude attempts to cure them would be early made. They would first try to remove them by making alterations in the kinds of their food, in the quantity and mode of preparing it, in their exercises, and the quantity of their coverings; then would they soon begin to use substances as medicines.

The discovery of medicines may have been first owing to accident: In searching after food, they would first use plants indiscriminately; but they would find that some of them were nutritive, and that others put the body out of its natural state. The first division would be into *esculent* and *poisonous*; the first keep the body in the state in which it is, the other bring it out of its natural state; and accordingly we find this definition of substances in every nation, however rude. All medicines are commonly reckoned poisonous, and with some foundation, for both put the body out of the state in which it is. Hence the best medicines, if long continued, act as poisons;

used in a state of disease, they bring the body to health; and if used in health, they will induce disease. Medicines would be first obtained from the poisonous class, and diet and regimen would be from the esculent; and when they found a medicine useful in one case, they would have recourse to it in cases that were similar.

They would next, by experiments in the agony of pain, be enabled to discriminate poisonous substances into mild and violent; the first to be used in medicine, and the second to be avoided altogether. Sick people often take strange whims, are averse to what they usually take, and are fond of uncommon things, which they think will free them from their complaint.

A poor Indian in South America, burning with thirst in the paroxysm of an intermitting fever, would drink of a water in the neighbourhood that no one else would taste, on account of its bitterness: The water gave him relief, and gained high reputation; but it being at last exhausted, was found to have derived its virtues from the bark of a branch of a tree lying in it. This medicine was kept a secret from the Spaniards for more than a century, till a favourite slave discovered it to save a viceroy's lady; and hence it made its way into Europe, being the famous Peruvian bark.

Next they would make discoveries on the nature of substances, by attending to the procedure of animals which resemble man in the nature of their food. All animals, but especially birds, have a great power of distinguishing what substances are proper for their food and what are not. Hence all travellers in unknown countries eat only those substances which they see picked by the birds; and if they do otherwise, have a chance of suffering for their temerity.

By analogy also they would be led to the knowledge of medicines: A dog in a state of health wants nothing but animal food; but when his stomach is disordered, he is fond of a particular kind of grass, which tickles his throat and makes him vomit. From hence men would naturally be tickling their throats with a feather, &c. when in the same circumstances; and from this vomits would be introduced. It is supposed that *Melampus* discovered the use of black hellebore in the cure of madness, by observing its effects on goats, which are very fond of it. They would likewise be assisted by observing in what manner nature freed them from diseases and promoting these means; thus they would see some diseases terminate in a bleeding at the nose, others with a sweat, and others with a diarrhœa. And, in imitation of nature, they would introduce bleeding,

sudorifics and purgatives in the cure of these diseases.

Every one would thus collect observations on medicines for his own use; and every father would transmit his skill in the nature of medicines to his posterity. Much knowledge might thus be diffused; but no one person could acquire much experience, as the diseases occurring in a family are not numerous. This was actually found to be the state of medicine in Africa and America; and from the Indians in North America we have obtained the manner of curing many of their diseases that resisted all our attempts.

Some persons would now appear who were eminent for their knowledge of the cure of diseases; accordingly we find some in every nation honoured for their skill in simples, and some of them raised to the rank of gods; and I believe the *deities* which every country has had as presiding over simples, were persons much respected for their good luck in curing diseases. Thus *Isis*, one of the Egyptian deities, was one of their ancient queens, famed for knowledge in medicine. *Cadmus* also, who was deified by the inhabitants of Tyre, was probably an old man who had acquired the knowledge of the use of vegetables in medicine, and accordingly the first fruits of vegetables were offered to him. *Apollo* and

Æsculapius, among the Greeks, were persons of the same description; the family of the latter remained long after he became a god, Hippocrates being one of his descendants. Their eminence would bring them more practice, and this would increase their knowledge, and thus render them still more eminent.

Another thing to be taken notice of is, that the priests were possessed at first of most skill; 1st, because they had frequent opportunities of conversing with the diseased; for sick people always begin to have serious thoughts about futurity. 2d, Temples were built for such as were deified for their knowledge in medicine, and people who were sick resorted thither with presents, and the priests, prompted by their own interest, would endeavour to acquire skill in curing them. A salutary practice in Greece was, that people who came to consult Apollo should sleep in the temple all night, and write on a tablet the history of their disease, and the substances by which they were relieved; and to this circumstance it was owing that the knowledge of medicine became at last more diffused among mankind.

The priests seem to have been better acquainted with the progress of diseases than with the remedies for curing them; their prescriptions consisted chiefly in the performance of certain super-

stitious ceremonies, such as running round the temple naked a certain number of times; and these were supposed sometimes to assist the operation of medicines, and at other times were depended on as alone sufficient for the cure. The cure was sometimes attempted by speaking certain cabalistic words in the patient's ear. I once saw an old Highland woman cure the tooth-ach in this way; she made the patient pronounce a certain number of very difficult words, and betwixt every word she gave a stroke with a hammer. The only way that this must have effected the cure, must have been by drawing the patient's attention from the disease to the pronunciation of the cramp words. At other times they tied different things to some part of the patient's body, by which they supposed the disease was drawn out.

All these are founded on magic, and the substances attached to their bodies are called *amulets*. They have been in use from time immemorial. In Greece, before the time of *Æsculapius*, and they are still not uncommon. These amulets are of different kinds. 1st, Certain cabalistic words engraved on a plate of metal, or wrote on parchment, were tied round the neck, or to other parts of the patient. The practice of hanging plates of metal round the patient's neck was used in England. One of the Edwards of England was for

his sanctity thought capable of curing the *scrophula*, or *king's-evil*, by touching the person affected. The patient was brought into the royal presence, was touched by him, and had a piece of metal with an emblematical engraving (of the Trinity, I suppose, for they are still to be met with) upon it, hung round the neck, which kept off the disease as long as it was wore. This power was communicated by Edward to his successors, and the practice was continued to the time of Henry VI. if not later. 2d, They tied certain parts of plants to their bodies; and it is still common enough in Scotland to tie a piece of mountain-ash to cows horns, to prevent their being elf-shot, or to place a piece of it over the door, to keep any evil thing from entering; and to carry a piece of the elder-tree in their pocket, to prevent the saddle-sickness; and to carry a roll of brimstone against a class of spasmodic diseases. Even men of understanding still carry a magnet in their pocket against the tooth-ach; and it is still a custom in North Britain to tie eels skins round the legs to prevent taking the cramp when swimming. A third kind of amulet is, medicines of known efficacy used in this way: —It is a common practice to sew powdered Peruvian bark in a leathern belt, and to wear it for the ague; quick-silver used in the same way, is a great remedy against all diseases of the skin.

All these shew the disposition of the human mind to have recourse to supernatural interposition, and have greatly hindered the improvement of medicine; especially as they were long continued because suited to the times; they were introduced by the avarice of the priests.

There was now only wanting a person to collect and arrange what was known in medicine, and Hippocrates was the first who did so; his elegance of style, and the correctness of his judgment, make them worthy our imitation, either with a view to medicine or fine writing; and even at this period he may be deemed an excellent writer on medicine. We have indeed accounts of others who were famous for their knowledge in medicine before his time. *Chiron* and *Macbaon* first collected all the knowledge of diseases from the tablets hung up in the temple; and as he was a priest himself, or at least a descendant of him who had a temple and priests of his own, he may be easily supposed to have got admittance into the temple of his ancestors. He lived some centuries before the Christian æra. *Varo* informs us that after he had copied the tablets he burnt them, to conceal the sources of his knowledge; but there is little reason for believing this, for *Varo* lived 500 or 600 years after Hippocrates, so that it must have been merely a tale in *Varo's* time.

That the young practitioner may not be un-

acquainted with the different systems that prevailed some centuries back, it may not be altogether unworthy his attention to give a cursory account of these to him, for whom these and the following remarks are chiefly intended. To begin then with the

SYSTEM of HIPPOCRATES.

1st, He sets out with considering a number of circumstances to be attended to before prescription; and first the constitution and way of life of the patient; these are certainly very necessary to be known. A man who lives chiefly on vegetables, eats little animal food, and drinks nothing but water, will require very different treatment from one who lives luxuriously, and perhaps drinks a quart of brandy every day. The difference of sex and constitution also merit our attention. A delicate woman who leads a sedentary life and has few muscular exertions, put on a low diet, would live well on what would starve a robust countryman in the same situation.

2d, We must attend to the kind of exercise to which they have been accustomed; such as use violent exercise, and at the same time eat well, (as country people) are subject to inflammatory diseases; but those who are rather nice than laborious, are subject to phlegmatic diseases.

3d, He next directs us to attend to the nature of the climate; according as it is hot or dry, it acts as a predisposing cause. Marshy climates bring on intermitting fevers; and in these we must be always subject to agues, and use bark in all our prescriptions. The season also requires our attention, for there are diseases that prevail most in every season, and are hence called *autumnal*, *vernal*, &c. our own climate being as different in Summer and Winter, as the climate of the South of France is from that of Norway.

These things being considered, he next attends to the cure, and always reckons the simple methods the best. And

1st, He paid particular attention to diet, which he thought should always be different in a state of disease from what it was in a state of health.

2d, He imitated nature in the cure. When he saw a patient naturally get rid of the disease, in similar cases he attempted to bring the patient into that state indicated by nature. This was an excellent practice. The violent exercise, and the other methods he took to effect this, were rather unsafe, at least they would be so in this island; but in Greece they used always so much exercise, that they might be proper enough there.

3d, He frequently recommended bathing, which was also a very common practice amongst

his countrymen; and I think it may be highly useful, and deserving more attention, than is paid to it in this country.

He also used certain plants in medicine, of which may be found 240 mentioned in his own writings; though it is difficult to say what they were, as he only mentions their names, supposing them well enough known. Besides these, I find about 60 other medicines mentioned by him, but very few of them are from the mineral kingdom. His attention to the progress of nature in removing diseases, was what gave him so much success; for many of his medicines have no more efficacy than common *greens*. When Hippocrates had thus chalked out a simple and rational method of curing diseases by co-operating with the exertions of nature, it is surprising that men left it, to follow implicitly Galen's system, which, though very ingenious, has not so much foundation in reason.

The pharmacy also of Hippocrates was the most simple imaginable: He only infused his medicines in water, milk, or vinegar, and sometimes wine, and seldom used more than one article in his compositions; and it may be observed that he has a great deal of merit in his description of diseases, and particularly of epidemical diseases, which is worthy the attention of every one.

By every physician of eminence, then, Hippo-

crates is looked on as the first and chief master of the faculty. Those who would distinguish themselves in the medical art, ought to make his writings their chief study; for though several improvements and new discoveries have been made in physic since his time, yet his works will ever be revered for their accuracy and utility.

Men who, like Hippocrates, have added to their knowledge the principles of natural philosophy, and the constitution and contexture of the human system, with long practice, experience, and observation, merit the highest praise, and deserve, in every well-regulated government, to be rewarded and distinguished, as the holy spirit itself signifies to us in the sacred writings * ; “ The skill of the physician shall lift up his head, and in the sight of great men he shall be in admiration ;” since their labours, watchings, and studies, are devoted to the people’s health, which of all human blessings is the most important and valuable ; and yet mankind are the least careful to preserve it ; they not only destroy it by riot and excess, but, by a blind infatuation and credulity, they stupidly entrust it to the care of scoundrels with neither skill nor experience, who impose upon them by their impudence and presumption, or

* Eccles. xxxviii. 3.

seduce them by the pleasing and flattering assurances of infallible recovery.—The next to be considered is the

SYSTEM of the METHODISTS.

These people erected a school, and tried to reduce to more simplicity the art of medicine. Accordingly all diseases were made to proceed from two different situations of the human body, both of which are remote from a state of health, viz. either from relaxation or rigidity of the fibres†.

They say, that any man, endued with common sense, may be a perfect physician in six months; and as the first aphorism of Hippocrates is *ars longa, vita brevis*; they begin with *ars brevis, vita longa*. The art of medicine might be acquired in six minutes, if their doctrine was true. As all diseases arose from relaxation and rigidity,

† Is not the system of medicine lately invented by Doctor Brown, called the Brownian system, nearly of a piece with this of the Methodists? He divides all diseases, as they do, into two classes, viz. *spenic* and *asthenic*; the former signifying an excess, the latter a defect of invigorating power. The first, he says, are to be removed by debilitating, the other by stimulant medicines; that the hurtful powers which excite either are the remedies of the other, and the contrary, &c. Tho' the Doctor takes to himself the credit of reducing the medical art to this simplicity and certainty, which was before, he adds, all conjecture, incoherent and false, yet every reader, who will compare this pretended discovery of the Doctor's to the system of the Methodists, will easily perceive the similarity of their doctrines, tho' somewhat differently modulated; but the extravagant opinions of such a man are not to be wondered at, if the reader had been acquainted with his private medical practice, to which I may venture to say, several patients fell miserable victims, particularly to his favourite *opium*, a medicine which his enthusiasm administered profusely and indiscriminately in full potations of all-powerful brandy. Is it necessary to inform the reader, that I hope he was the last sacrifice that will be offered at the shrine of two such potent deities as opium and brandy?

so all medicines were divided into two kinds, *astringents* and *emollients*; the first removing relaxation, and the other rigidity. They made no experiments however to prove that the substances were possessed of these qualities, but asserted that they were astringent and emollient, tho' without any foundation; thus they called cinnamon, cassia, &c. astringents, and opium a relaxent. It is well known that the number of astringent and emollient medicines is much less than they made them; besides, they could not say in what cases the diseases arose from both, viz. relaxation in one part of the body, and rigidity in the other; and then they used medicines of an opposite nature, and which would of consequence rather do harm, as they counteracted each other's effects.

They said that a physician had no occasion for the auxiliary branches, as an acquaintance with the structure of the human body, &c. which requires no confutation. The methodists first tried antidotes, which are a species of prophylactics; for all diseases are the effect of relaxation and rigidity. If they prevent these, they will prevent the attack of any disease; and accordingly they puddle together all the medicines that were either emollient or astringent. Of this kind is the *theriaca* of Andromachus, which was contrived as an antidote against poisons (for the tyrant Nero, who was terribly afraid of being poisoned); for poisons could have no ef-

fect on the body, if there was no laxity nor stiffness amongst the fibres. The effects of this medicine, if it had any, were entirely owing to the opium it contained, and accordingly such as used it became always lethargic. Besides, many substances are reckoned poisonous by ignorant people that are not really so; but they thought that almost every simple was a poison; and hence their antidotes would seem to have great effect. Cicuta, Hyocyamus, and the bites of vipers and other animals, were the only poisons reckoned incurable; and no person thought that Socrates would have lived after eating hemlock.—The third system to be considered is the

SYSTEM of GALEN.

Galen is a voluminous writer on physic, and on all the substances used in medicine; and as his notions have influenced, or rather solely directed, the practice of physic for so long a period as from A. D. 140 to 1600, it may not be improper to shew their absurdity, by giving an account of them.

Being himself a peripatetic philosopher, and well acquainted with the tenets of that sect, he introduced their doctrine of occult qualities into medicine. Their primary qualities were *heat, cold, moisture, and dryness*; and, according to them, all diseases arise either from the heat, cold, &c. of

medicines. Diseases occasioned by cold, are cured by warm medicines; those occasioned by moisture, by dry medicines, &c. but as the combinations thus formed are few in number, they divided each of their qualities into four degrees. Medicines that merely excited the sensation of heat, so as to make it perceptible, were hot in the first degree; I think *min^t* might have been of this kind; those that gave a clear and distinct sensation of heat, as cinnamon, &c. were of the second degree; such as made a strong impression of heat without corroding, as pepper, were of the third; and to the fourth degree belonged such as burned the part to which they were applied; for instance, cantharides; and cold, moist, and dry medicines were arranged under degrees in the same manner.—He also encouraged the antidotes at that time made use of by the Methodists; for diseases might partake of more than one of these qualities, as a *cold sweat*, or a *moist cold*; hence the compositions were loaded with ingredients.

His commentators and admirers, however, carried this still farther. During the dark ages that succeeded Galen, knowledge took sanctuary in Arabia, where Galen became revered. From Arabia it made its way into Europe; and both Arabians and Europeans vied in understanding Galen, and enlarged his doctrines by commentaries on his works. It was now more necessary

to act agreeably to the rules of Galen than to the dictates of common sense; and accordingly a prescription, even for a common cold, contained at least twenty ingredients, many of them having opposite qualities.

The successors of Galen grafted other divisions on these made by himself; for medicines may have effects on the body from other qualities, according as they consist of hard or soft, sharp or blunt parts; they may be thin, and then attenuate the fluids; or thick, and then they incrassate them; as if they had seen them producing these effects. Again, some of each of the hot, cold, moist, and dry medicines act on one part of the body, and some on another; hence a third division of each of them into *cephalics*, *cardiacs*, *diuretics*, *stomachics*, *hepatics*, &c. and to these divisions a fourth was added, to include those medicines that came under none of the other classes.

Besides, Galen himself imagined that all medicines might be adapted to every disease by the rules of arithmetic, so that arithmetic was the first thing a physician learned. After the medicine was compounded, they next considered whether it might not fail in producing its effects, from being destroyed by the digestive organs (and indeed there is some foundation and propriety in this) and therefore a medicine is joined with it to convey it beyond them; but it may go too fast

or too slow; in the first case, we are directed to bridle it with some medicine, in the other we spur it on; besides, every medicine has its particular station; and to make it go to a particular part, a guide is added lest it should wander.

We have only to add, that the Galenists practised certain religious ceremonies during the operation of the medicine. Avicenna has collected a great number of the incantations that were composed for the use of the sick. The most common disorder for which they were used, was the *wind colic*, occasioned by wind collected betwixt the spasms of the bowels, and is distinguished from an inflammation of the intestines by a fixed pain, costiveness, and a healthy pulse. The cure for this was a quantity of rhubarb, with some pepper and ginger, and a hymn to be sung; the operation of these, even without the hymn, is so sudden, that it was thought to be owing to the immediate interposition of heaven; and hence *carmen*, which before signified a hymn, after the time of Galen signified an enchantment; and the medicines that accompanied the hymn were formed into a class, under the name of *carminatives*.—The last system to be taken notice of is the

D

SYSTEM of the ALCHEMISTS.

Men continued thus commenting on Galen till about the revival of letters, or I believe in some measure till the time of Charles II. About the year 1500, however, the alchemists thought proper to apply some of the substances which they had discovered in their *magnus opus*, or search after the philosopher's stone, to the cure of diseases. At first they had great success, which was chiefly owing to the use of two substances, *antimony* and *mercury*, and particularly of the latter, in the venereal disease, which resisted all the prescriptions of the Galenists.—Having thus overturned the doctrine of Galen and his followers, they founded a system on chymical principles, and scrupled not to assert, that they could discover (and some of them affirmed that they had discovered) a universal medicine, that would cure every disease, and prolong life. One of their number, once very eminent, was *Paracelsus*, who was at least serviceable to mankind in this, that he showed the fallibility of Galen, and produced a spirit of enquiry that has continued ever since. Medicines were altered greatly by the chymists, both in number and preparation; they furnished what could only be formed by chymical means; for, by mixing ingredients, the compounds ac-

quire qualities distinct from the qualities of the ingredients. They pointed out, likewise, better methods of preparing them; such as to extract the active from the inert matter, or to produce greater effects by it; they likewise expelled a number of useless medicines, proving that many were intrinsically the same, and that some much trusted to were insoluble in any of the fluids of the human body. Chymistry was of this service, however, to medicine at first, that they employed for a long time only violent chymical means, such as beating the bodies red hot. It is only 40 or 50 years since it was first discovered, that such violent means either destroy the virtue of substances, or change them into different ones. *Toasted rhubarb* has no purgative quality; and every body is reduced into the same kind of substance; thus from jalap, ipecacuanha, sugar, bark, &c. we get a substance that has exactly the same qualities; yet *Geoffry* pushed this way of preparing medicines very far, for he made them all undergo one preparation, viz. violent heat. Gentle methods are undoubtedly the best. 1st, We should never expose them to a heat greater than boiling water; and 2d, We should expose them to such bodies as they are likely to meet with in the human body, as to water, spirits, &c. This method was first introduced by Newman, and

carried to great perfection by *Cartheuser*. By this mode of procedure we often discover in what part of a medicine the activity resides, and hence become acquainted with the proper method of preparing it. *Cartheuser* would consider gum ammoniac (to give an example) in this manner: He would expose it to boiling water, and would find it make the water milky; but as muddiness is a mark of imperfect solution, in this case it is accidental. He would then expose it to spirits of wine, and would find that the activity lies in the resin, and therefore that the spirit of wine is best for extracting it; but if spirit of wine is improper in any case, by mixing some gummy substance with the water, we enable it to dissolve in greater quantity. *Van Helmont* appeared soon after *Paracelsus*, and made many improvements by his extensive knowledge in chymistry; but his system of the effects of medicines on the body is very ridiculous.

The motions of the body are either *voluntary* or *involuntary*; the first are performed by muscles, and are the consequence of previous volition; some of the involuntary are also muscular, but they have no connection with the mind, as the action of the heart and arteries, and the peristaltic motion of the intestines; others are partly voluntary and partly involuntary. Thus we modulate respiration, tho' nobody would choose to put a

stop to it. The involuntary motion he supposed to be performed by a power which he supposed to be neither soul nor body, but between these, possessing some of the qualities of each; this power he called *Archæus*, or the vital principle, that had the care of the motion of the heart and arteries, the peristaltic motion of the intestines, of the brain, and all the secretions; sometimes, from mal-information, he would not perform his duty; but sometimes moved the heart too quick, occasioning fevers; at other times he moved too slow, by occasioning too languid diseases; or he forgot altogether the circulation in some parts of the body, and so on; often too he became sulky, and would only do as he pleased; he would lessen the motion of the intestines, and thereby cause costiveness; then he would all at once begin to work and do too much, bringing on dysenteries. The way of cure is as curious; as the best way to drive anger from a man is to frighten him, so they frighten *Archæus* to his duty, and therefore used some animal that was very easy put in a fright, and by the application of this, brought *Archæus* to the same state. The *rose* on the skin is owing to his playing devastation, in one of his peevish fits, on the external parts. Dysentery again arises from his increasing (in a passion) the motion of the intestines; in both cases he is to be forced to his duty by banishing the pet from

him: In the one by drinking the blood of an hare, which has been frightened as much as possible before it was killed; in the other, by applying a little of it to the place affected with the rose; this application bringing Archæus into the same state in which the hare died, and making him do his duty in dread of worse consequences. Such absurd notions brought contempt on the chymists; they have of late, however, been introduced in another form; for it is asserted that the blood is possessed of the living principle. The validity of this opinion I shall not enter upon, having doubts of my own concerning this doctrine; nor does it come within the purpose of my present plan, as my intention in this preface was only to give a general history of the ancient doctrines, for the information of the young practitioner, which I believe is, in general, too much neglected by them; they having only a regard to the different hypothesis advanced by the *great men* of the present day, many of which, if strictly enquired into, may be found more ingenious, though equally erroneous; these shall be taken notice of when I come to consider the proximate cause of fever.

THE
HISTORY
OF
MEDICINE.

CHAP. I.

SECT. I.—*Of FEVERS, strictly so called.*

FEVER is one of the most common diseases to which man is subject, and at the same time one of the most dangerous. Sydenham says, that two-thirds of mankind are cut off by fevers. From my own experience, however, I am disposed to consider this calculation as too high; it is certain, fever is a very common and fatal affection; and it is not to be wondered at that it should claim the attention of so many medical writers, who have, in general, taken it in a more extensive sense than is intended in the following sheets, whether occurring as cause or concomitant symptom. Whenever thirst, heat, and quickness of pulse are present, some medical writers term it fever; others have taken so extensive a view of diseases, as to divide them all into *febrile* and *non-febrile*. This distinction is now, however, rejected; yet, with a great number of writers, febrile

diseases constitute a numerous class, especially with the eminent Dr Cullen, who has included inflammatory hæmorrhages and catarrhal affections, attended with febrile symptoms, under this class; this may be considered exceptionable, as it includes affections where there is no affinity; for I am of opinion that fever, strictly so called, cannot, with propriety, be joined with any other affection. Fevers, therefore, ought to be reduced into an order by themselves, including four different genera, viz.

EPHEMERA, *fever of 1 d.*

SYNOCHA, *inflammatory fever*

TYPHUS, and *burning fever*

INTERMITTENTS.

Intermittents of themselves form many genera; I shall afterwards give my reasons for considering them as one, and shall only at present observe, that, from the similarity of cure in all, and the quick transition with which they often pass from one genus to another, we should have sufficient grounds for supposing them essentially the same, and for considering them as one genus.

Though I have divided fevers into four genera, I consider proper *idiopathic* fever as always one and the same; but when *symptomatic*, it is to be remedied by removing the cause from which it arises, which requires different treatment; I view, therefore, simple fever, as a disease *sui generis*, oc-

caſioned by remote cauſes; and when theſe cauſes are external, without any evident prediſpoſition, they are ſimilar in all, and regularly uſhered in by a febrile paroxyſm.

SECT. II.—*Symptoms conſtituting FEVER.*

Cold—is the firſt ſymptom that occurs, and this is differently modified in different ways, often over the whole body; but it is moſt frequently felt in a partial manner, as the cold is varied in its extent or ſituation; it is likewiſe ſo in degree; and when the ſenſe of cold is moſt general over the body, it is more immediately referred to a particular part; this feeling is ſometimes referred to the internal parts, eſpecially in the bones, tho' moſt commonly to the ſurface. The extremities for the moſt part feel cold; but this ſenſation is more eſpecially to be felt in the back, as if a ſtream of cold water was applied to the part; this ſometimes amounts to a real ſhivering, as that produced by expoſure to cold; this ſymptom is found not to bear any proportion to thoſe ſucceeding in this diſeaſe. The moſt remarkable circumſtance reſpecting this cold fit, is, that it is only a mere ſenſation, and not a real cold, ſuch as is felt in conſequence of a diminution of the temperature of the body; ſhivering follows the expo-

sure of the body to cold, which is not an imaginary feeling, there being an actual cold and diminution of the temperature of the body; but in febrile cold it is quite otherwise, for no change can be discovered in the actual temperature, and the thermometer shews the heat of the body not to be diminished.

Increase of pulse, is the next system to be considered.—Some say that the pulse is at first slow; this I never could observe; but perhaps there may be room for deception here, from the smallness and feebleness of the pulse. If this always takes place at the beginning, I suppose it is only for a short time. The quickness of the pulse is often present in other affections, yet it is essential in fever; for unless the pulse rise to a hundred strokes in a minute, it cannot be said that any considerable degree of fever exists; while it is increased in the number of strokes, it is at the same time often weak and small, at other times hard and full; but increased quickness is the constant and essential symptom in all fevers.

Heat.—An increase of heat succeeds to the former sensation of cold, but it is of longer continuance; the heat, in this case, differs from the former sensation of cold, in not being a mere feeling only, but depending on an actual increase of heat in the body, discoverable by our feelings and the thermometer; this differs not only in de-

degree at different times, but also in a variety of minds; in some there is a sense of burning heat, in others a prickling heat—the *calor mordicans*.

Thirst—is the next symptom, which, if not essential, is at least a very common symptom in fever, and often takes place to a very great degree, which perhaps depends more on the parched state of the *fauces* and condition of the *nerves*, than on any other cause, and may probably be looked upon as a secondary symptom; but as it is so obvious and common, it may be esteemed an essential one.

Debility—About this symptom a great deal has been said, as tending to explain the nature of fever, which will be taken notice of afterwards; we will here only consider if it be essential; and on that point we may safely affirm, that there is no fever which it does not attend at some period or other. It is observable, that after resolution of fever the patient is left in a greater state of debility than before; nay, in some cases, there is a morbid increase of strength. We may consider, however, debility as essential to fever; there is something in debility different from mere weakness, which often depends on the state of the muscular fibres; and this last is exemplified by the state of the patient after the crisis; it is true that in fever an active force occurs, which seems

to be somewhat inordinate and tumultuous, not properly subject to or directed (if we may so speak) by the will; and to me there appears great analogy between the debility of fever and the weakness succeeding intoxication, where we find a loss of strength, not owing to the condition of the muscular fibre, such as the state of it after fatigue, exercise, &c. but to the action of something weakening the energy of the sentient principle. May we not suppose that what induces debility in the former case, may act in producing the loss of strength similar to that induced by intoxicating liquors in the latter? In this state of debility there is, however, great variety; many circumstances affect it, as posture, especially a change from the horizontal to the erect; hence it would seem to proceed from some other cause than the state of the muscular fibre.

Anxiety.—This is considered as a characteristic mark of fever by many; but it is described by none more accurately than the late professor Monro, who, in the course of his practice in Edinburgh hospital, looked on it always as a pathognomic sign of idiopathic fever; this being a simple sensation, we cannot pretend to describe it. It does not seem to derive its origin from any particular part of the body; as far as it does so, it is generally more particularly referred to the

stomach. Hence the name of *anxietas precordiales* by some.

Delirium.—This is an affection of the mental faculties. It is true, this affection of the mind does not take place in all fevers under the form of delirium; yet the mind is less or more affected, which discovers itself by a confusion of ideas, want of command of its own faculties, absence of sleep, which, when it occurs, is not refreshing, with some sensations referred to the head: These are in whole, or in part, essential.

All these symptoms, pointed out as above, attend all the most simple fevers; and unless there be a succession or combination of these, there can be no fever. As I look upon all fevers to be essentially the same, and what I have pointed out as different genera I considered only as varieties resulting from particular or accidental circumstances; this division, however, may be necessary, as far as the different modes direct us in the cure. Perhaps fault may be found with my using the term *ephemera*, as, according to the common acceptation of it, it should be of twenty-four hours continuance; I have here taken it in a different sense, by which I mean simple fever, without regard to its duration. When fever, properly so called, is combined with the inflammatory diathesis, it then constitutes what I have called *synocha*; when with the putrescent disposi-

tion of the body, it assumes the term of *typhus*: In all these, remissions and exacerbations take place, yet during its course the patient is not free from fever. In some cases an actual absence of fever takes place after a paroxysm, which at a stated interval recurs; this I call *intermittens*. In all these, however, I consider the morbid state to be the same.

The symptoms enumerated above are the common and most essential ones, tho' there may occur a variety in degree and deviation from particular circumstances. We shall here endeavour to describe the common appearances and occasion of these symptoms, as constituting fever.

The first that appear are languor, inactivity, loss of appetite, nausea, and lassitude, want of sleep, and any sleep they have, not refreshing; a sensation of cold, as already mentioned, with shivering over the whole system; but this more particularly in the lumbar region, extremities, &c. After this symptom has continued for some time, it is succeeded by warm flushings, and a sensation of heat, which often alternate with cold fits; but the hot fit, however, becomes in a short time more permanent. On the increase of heat, the pulse, which was before quick, becomes now full and hard; there occurs thirst and a parched state of the fauces; liquids do not sit easy on the stomach, but are thrown up again; with these

symptoms there occurs anxiety, frequent sighing, and the respiration, during the cold fit, is low and frequent; but, during the hot fit, becomes more full. Inordinate action takes place; but sometimes possessing a power of action, in a horizontal posture, of which they are deprived in an erect one: *Vertigo*, *tinnitus acrium*, sometimes attend the erect posture; tendency to drowsiness sometimes occurs, which approaches to torpor, but more frequently are harraffed with watchfulness, &c.

These symptoms continue for a longer or shorter time, without great variety, for five or ten hours, when they are terminated by a simple paroxysm; when these symptoms disappear or abate without sweat, they commonly recur; or when only by a diminution of febrile heat, they disappear. In this case they commonly return with an accession of the cold fit; and in this recurrence they do not observe stated or regular intervals. In the synocha often twice in twenty-four hours.

A salutary crisis takes place in such a way, as often puts it out of our power to know the time; it happens sometimes by evident signs of evacuation, previous to which there is, in general, an exacerbation of all the symptoms. The evacuations that denote a crisis are not easily known, but if the pulse fall after it, it is the best indica-

tion of a perfect crisis ; if it happens by a sweat, the pulse falls under the natural standard.

Critical evacuations are of different kinds ; the most frequent is by sweat ; but sometimes it happens by urine, which is pointed out by either its increase or colour ; in the colour an alteration takes place two ways.

I. By its losing its high colour, and becoming paler.

II. From becoming higher coloured from a very limpid one, both changing to an amber colour.

Sometimes a crisis is known by a separation, so that in place of a cloud, there is a sediment of a turbid appearance and brown colour, like brick dust, called by writers the *lateritious* sediment ; this was once thought to be the morbid matter expelled ; sometimes it is known by the subsiding of a white mucous-like substance, called *sedimentum album sive æquabile* : This of all others is the most favourable mark of a crisis ; it likewise takes place by a spontaneous diarrhœa, and sometimes by evacuations, which cannot be looked on as natural ; such as hæmorrhages, which may occur from any part, but more especially from the nose. A resolution in this manner occurs more generally at early periods, or when the fever continues only for a few days ; when it occurs at more advanced periods of fever, it is to be considered as rather dangerous. A crisis by salivation has been said

to be critical, tho' I cannot say I ever saw it. A crisis often happens by sleep, without any discharge. Of all the symptoms indicating the approach of a crisis, it is most distinctly marked by what is called *perturbatio critica*, which consists in an exacerbation of all the symptoms, which is more especially known by the increase of heat and pulse; but certain circumstances precede some particular crisis; thus the double beating pulse, hæmorrhages, &c. and the intermitting pulse, indicate diarrhœa; but I think these two facts need further observation.

SECT. III.—*Of Critical Days.*

The doctrine of critical days, is an opinion as old at least as Hippocrates and Aristotle; and though poetry takes liberties on every opportunity;—

- “ —as imagination bodies forth
- “ The forms of things unknown, the poet's pen
- “ Turns them to shape, and gives to airy nothing
- “ A local habitation and a name.

SHAKESPEARE.

yet, in the investigation of medical knowledge, we surely ought never to use such liberties. By the ancients, the crisis was thought to happen on some particular days, rather than on others; this

idea was connected with some odd circumstances, as the power of numbers by some, the conjunction of planets, &c. The influence of the moon has of late been said by Dr Balfour of Bengal, to affect fevers very much, and to be particularly fatal at the new and full moon; from any observations I have been able to make, I cannot say that this doctrine is in any degree evident, tho' it requires a very long experience to judge with precision on his opinions concerning this subject.

The Pythagorean philosophers, who laid great stress on the power of numbers, might conduce to the prevalence of this notion in medicine, when that philosophy was much in vogue; this opinion lay for a long time neglected, till it was of late revived by two celebrated writers, Drs Haen and Cullen. It is the less surprising that the former should favour an opinion, was it even more hypothetical and extravagant than it is, when we find his credulity getting so much the better of common sense, as to allow himself to write in favour of witchcraft, to espouse the cause of magic, and to countenance the idea of its influence. As to Dr Cullen giving into the doctrine of critical days, is not to be much wondered, at as a particular attachment to a certain theory and system seems to have influenced his opinion on this subject, being desirous of reducing fevers in the begin-

ning to the tertian, and, in the latter, to the quartan type: If we were inclined to start objections to this doctrine, many naturally present themselves. The critical days pointed out are the 3d, 5th, 7th, 9th, 11th, 14th, 17th, and 21st. It may be observed, that if we reflect on the critical days in the first eleven, there are more than *non-critical ones*; so that many fevers, in the common course of nature, should terminate on the critical days, suppose we should allow them no more influence than the non-critical in bringing about a resolution; that the first attack of fever is often very difficult to be discovered, and therefore we must be ignorant on what day the fever commenced; that likewise the crisis is liable to the same obscurity in point of time, till it discovers itself by a convalescent state, and that also very gradually, so as that the keenest advocates for critical days do not pretend to say that the crisis never happens but on them only; the most sanguine have not alledged, that all fevers terminate on the critical days; whatever might occur in Greece, from the peculiarity in climate and mode of life, the most attentive observers now-a-days cannot persuade themselves of their existence; besides, a critical hour should happen as well as critical days, if their doctrine was true. These, and many other reflections that are very obvious,

seem to me sufficient to invalidate the hypothesis they so strenuously defend.

SECT. IV.—*Predisposition.*

With respect to predisposition, I can only say, that there is neither age, sex, temperament, or period of life, essential to its taking place, though some kinds are more connected with particular circumstances, such as peculiar temperament and period of life; thus the synocha occurs most generally to those in the prime of life, and of vigorous constitutions; while the typhus, though not confined to any particular period, occurs more commonly in the advanced stages of life, and with debilitated constitutions; and the young seem to be exempted from the ephemera. Every individual is not equally easy acted upon, by the occasional causes, yet we are unable to determine in what peculiarity of habit it exists, only we see that it is connected neither with age nor sex; we likewise may observe, that when there is a predisposition, it is apt to remain through all the stages of life; we cannot say that this predisposition is connected with any peculiarities in temperament, or more connected with the sanguine than debilitated or choleric, and therefore must conclude that it results from peculiarities, we are entirely ignorant of; perhaps on some state of the nervous

system, which, though we know they exist, we do not know their nature.

SECT. V.——*Remote Causes.*

Some reduce the remote causes of fever to a few heads, others to a great number; but though I agree with the latter opinion, I shall rather describe a few of them than enter into minute particulars.

Contagion,—by which is meant something generated in the system, and communicated to others, is one of the most common; but if contagion was as often the cause of fever as some authors imagine, it would occur more frequently than it does; and, altho' two or three of a family are seized with it, it may arise from other causes than contagion, as watchfulness, passions of the mind, &c. therefore I would consider contagion not so often the cause as is imagined; yet it is plain, as in gaol-fevers, hospitals, &c. where a particular matter is generated in the body, which is evidently infectious. As to the nature of this matter we are at a great loss, as well as we are respecting the particular quality on which the contagion may depend; we are only in the same state here as in cases of small-pox, measles, &c. where, though we see the contagious matter before, we are unable to determine on what its

contagious quality depends: It may be asked whether or not contagion in proper fever be the same or of different kinds? In favour of the first, we have the analogy of small-pox, measles, &c. where we know that the same contagion produces uniformly the same fever; and in favour of the latter opinion, we observe that fevers appearing at different times and from the same contagion are found to be diversified so much, that we cannot easily determine whether they are always uniformly the same, or of different kinds; I cannot help, however, looking on it as a specific matter, though we are ignorant of its nature. Though contagion is often the cause of fever, yet I do not think it is so often the cause of fever in this country as it may be in others; we have a cause of fever more frequent in

Marsh Effluvia;—but when arising from the action of putrefaction or moisture, we cannot say; but that a peculiar matter is effused, is evident by the smell, though I consider it as arising from moisture alone; it may arise from other substances than the human body, as from the putrefaction of vegetables. There are many other causes which give rise to fever, of which we may mention a third, the

Action of Cold,—which I think is a much more frequent cause of fever in this country, than any other cause we have occasion to take notice of in

practice; but it is sometimes accused where it has no influence; and, on the other hand, it has produced fever in many instances where no other cause could be discovered.

Heat.—Fever is also frequently the effect of heat. It may seem strange that causes opposite in their nature should produce the same disease; but this occurs every day, as in producing topical inflammation. Acids and alkalics, which, when applied to the animal fibre, produce the same disease; therefore heat may certainly be considered as a cause.

Stimulants—of various kinds, both external and internal, have been assigned as the cause of fever, particularly those which act on the alimentary canal, as irregularity in eating or drinking, matters deposited there by the system; deficient impregnations, as matters entering the blood; and of increased discharges, as profuse hæmorrhages; but more frequently from suppression of certain evacuations.

Passions.—Fever is sometimes induced by mental causes, both of a depressing and exciting nature, as from anger, or sudden surprise; but more frequently from fear.—There is a remarkable instance of fever, as caused by fear, related to have happened: A boy being in the fields, was alarmed by several cracks of thunder; he returned home, was seized with fever of the worst kind, viz. hæmorrhages from different parts of the

body, petuhæ, putrid stools, &c. This I consider as a great proof of the effect of fear in producing fever; we may likewise mention long-continued exertion as a cause of fever, whether of body or mind; we have instances of its arising from bodily fatigue, long thinking, &c.

I think fever may be ascribed to all these causes already mentioned; and we may also mention an ancient opinion, viz. the state of the atmosphere, in which contagion or putrid effluvia do not abound, and particularly taken notice of by that accurate observer of nature, Dr Sydenham; but this, I think, may be the state of the contagion floating in the atmosphere.

Proximate Cause.—If there have been many disputes concerning the *remote*, there have been still more about the nature of the *proximate* cause of fever; this is not to be wondered at, when we attend to the intricacy of the subject, as well as to the ingenuity of the many that have attempted an explanation of it.—Of these different theories, many have no foundation, and are merely conjectural; but which, however, during the time they prevailed, have proved very prejudicial to medicine. After all that has been said at different periods, concerning the proximate cause of fever, perhaps it is yet as little understood as ever; and that we shall find the present prevailing *theories* equally unsatisfactory with any of the preceding

ones; and that none of them can direct us in the practice. I need not go back so far as when these theories took their foundation in wild fancy and mere conjecture, such as the humours of Galen, the mentioning of which is sufficient to overthrow them: That such as these tend to injure practice, none will presume to deny; and the same may be said of the theories of the present times. While the idea prevailed that the proximate cause of fever was that of an *exertion of nature* overcoming or expelling something prejudicial to the system, led to inactivity, or at best a weak and frivolous practice; that of its depending on an *acid*, on the other hand, led to violent and destructive measures, as did likewise the *Archæus* of Van Helmont, as well as the *anima* of Shhal, &c.

The theories of modern date are built on a foundation equally unsatisfactory with that of the ancients. As we are in this state of ignorance with respect to the proximate cause of fever, perhaps we might be excused in following the example of some modern eminent writers who have taken no notice of it, such as Sir John Pringle, Lind, and Cleghorn; yet the world is much indebted to them for the light they have thrown on the subject of fevers.

As theory is, however, natural to the mind of man, it will probably not be thought ill spent time, in investigating, in a cursory manner, some of the most prevalent and celebrated; and if the remarks to be offered shall either guard the young practitioner against false practice, resulting from an implicit dependance on the opinions of *great names*, or direct him to the true nature of the proximate cause, I may esteem my time and labour not altogether unprofitable to the reader.

On this subject I shall take notice of three different theories that have taken place since the commencement of the last century, viz. those advanced by *Hoffman*, *Boerhaave*, and *Sydenham*; besides these, we may mention the theory most fashionable at present, that proposed by Dr Cullen, professor in Edinburgh, which, however, is only the doctrine of Hoffman, or indeed a modification of it. The opinions of this justly celebrated professor ought to be respected on almost every subject; yet if he is led by his love of fame to palm extravagant notions on his pupils, on certain medical disquisitions, it does not become a free and thinking being to pay implicit faith to a doctrine that, on reflection, appears liable to so many objections.

- I. Theory, is that of morbid matter.
- II. ———, makes the cause depend on *lentor*, and
- III. ———, on spasm.

Morbid Matter.—This theory refers the proximate cause of fever to a peculiar morbid matter introduced into the system; or there generated and multiplied, till, by an operation in the body, it undergoes a particular fermentation, concoction, and assimilation, and is then expelled by certain emunctories, under the form of evacuations.

A particular account of this doctrine will be found in Sydenham's works; although this idea appears to me, for many reasons, ill-founded; yet I am persuaded it is more specious than any of the other two, which are so much celebrated. The matter alluded to in this theory, has been called the *materia febrile*, and has been founded on arguments drawn from three different sources.

First, from the analogy of the contagious matter, and the small-pox and measles, where the affection is the consequence of a morbid matter introduced into the system, and expelled by an assimilating process; hence a similar matter may be the cause of all fevers.

The second argument is drawn from the certainty that proper idiopathic fever, as well as

the small-pox, measles, &c. can be communicated by contagion.—Of contagion I have already spoken; and though I do not think it so common in this country as is supposed, yet I am far from doubting its influence; the matter here is not so obvious, as in the small-pox it cannot be carried on the point of a lancet; yet it may be said to be as obvious as in some evidently infectious diseases, as measles, chincough, &c. where the *materia febrile* can be carried by the medium of clothes, air, &c. and the process of infection is said to be like that in measles.

The third argument is drawn from the salutary termination of fever by critical evacuations. The advocates for this theory maintain, that in every proper idiopathic fever there is always a discharge of matter, as in the evident contagious ones; and perhaps it may be impossible to prove that there is not a contagious matter thrown off in the fever.—This doctrine, as I have already observed, is more specious than the other two of *lenter* and *spasmodic*; yet this hypothesis is liable to many objections, when we view it as the general cause of all fevers; and

First, though it must be allowed that the analogy between proper fever and the small-pox affords some grounds for the opinion, and that they agree in some particulars, yet they are by no means conclusive, as they differ evidently in other re-

spects. The first idea that will readily occur here, is, that proper fever could never happen to a person but once, if the cause was the same, or similar to that in the small-pox; and if it may be said that the difference in idiopathic fever depends on a peculiarity of the morbid matter, it will be difficult to point out on what that peculiarity depends.

Second—there should be the same uniformity in the concoction and expulsion of the morbid matter; this, however, is by no means the case; for there is often a wide difference in the cure, as in the small-pox there can be no artificial cure; and however much it is in our power to alleviate symptoms and render it mild, it will take a stated time to run through its course; whereas, in proper idiopathic fever, this by no means holds, even when left to nature; this, in some cases, and often when treated artificially, is brought to a conclusion. Thus, if the first argument in support of this theory is liable to objections, the second is still much more so; for proper idiopathic fever is often induced from something different from contagion, it would be a strong presumption in favour of a morbid matter being the cause in all fevers; but we find that it can be often produced from passions of the mind, especially from fear.

In answer to the third argument, we may observe, that it cannot be denied, as a salutary ter-

mination happens often by critical evacuations; yet frequently a sudden convalescence takes place, when there is no discharge of any kind, as by sleep; and again, when the discharge happens, we can by no means be certain that it is a morbid matter thrown off. Perhaps the evacuation is more a concomitant than a cause of the crisis; the proof here is therefore very defective.

Besides these objections to the three different arguments which have been adduced in favour of this doctrine, others, equally strong, occur from various circumstances that frequently happen in the course of fever, such as, that if an assimilating process was necessary to produce fevers, it should certainly take some time; but in place of this, we find a fit often ensue the exposure to contagion; we should also expect the expulsion to take time, but the expulsion is often instantaneous. We have no reason to suppose a change in the fluids when fever is from passions of the mind; yet evacuations attend these as well as others; we might expect the *materia febrile* should find way through one common emunctory, but we often find evacuations by many; we cannot imagine the *materia febrile* expelled by a few drops of blood from the nose, yet a crisis often happens in this way; but we sometimes find fevers terminated by the causes inducing them, which could not be the case if the cause was mor-

bid matter, as cold, fear, and surprise, have cured intermittents instantaneously, when other remedies have failed; likewise by the electric shock, by the commotion of emetics. We cannot surely say, that, in these cases, the termination happened by the expulsion of the *materia febrile*.

Lentor.—This doctrine of *lentor* was entirely the idea of the celebrated Boerhaave, who placed the proximate cause of fever in a preternatural *lentor* of the fluids, and that the resistance of the extreme vessels was owing to this *lentor*; besides, this admitted of a particular irritation at the heart; but the quickness of pulse cannot be said to be the cause of fever; the cause is certainly some morbid condition giving rise to it: This is not agreeable to the phenomena at the beginning of fever, as paleness, coldness, &c. but granting its existence, it should correspond with the phenomena of fevers. *Lentor* is a condition of the fluids that the remote causes have no tendency to produce; we cannot see how it arises from heat, cold, contagion, &c. *Lentor* should occur gradually, and produce obstruction also by degrees; and be removed in the same gradual manner; neither can *lentor* be supposed to disappear suddenly, which fever often does; nor can it be cured by sweat: These circumstances are irreconcilable to the phenomena of fever, such as small hæmorrhages, profuse sweats, &c. which should

rather increase the *lentor*. Finally, we have proofs of the existence of *lentor* to a very high degree in dropfy, scurvy, &c. without its producing fever. Dr Langrish made several experiments to prove the existence of *lentor* in fever; but no certain conclusion can be drawn from them, as his experiments were made on certain parts of the blood separated from the rest, without attending to the circumstance of blood-letting, which alters the state of the separation and concretion very much, in the blood drawn out of veins; hence it appears that the doctrine of *lentor* is more liable to objections than the former opinion.

Spasm.—The doctrine of spasm was, as has been already observed, first laid down by Dr Hoffman; and, from the number of the adherents to his opinion, it merits our attention, as, in my opinion, it is as liable to insurmountable objections as any of the other two already taken notice of.

This opinion has been differently modified, and by none more than Dr Cullen; but, however, he has increased the number of its followers, which is not to be much wondered at, considering the number of pupils to whom he had for so many years an opportunity of explaining it, added to the shrewdness of his reasoning on the subject.

I have for some time had my own private doubts concerning the justice of his doctrine;

and though it becomes a young author to speak with diffidence in opposition to such great authority, and so respected a name, yet surely every one may be permitted to think for himself, and start his objections, when offered to the opinion of the public, with deference. That these objections may be better understood, it is necessary that the Doctor's doctrine respecting the proximate cause, should be stated.

Dr Cullen says that the remote causes of fever are such as, when applied to the nerves, diminish the energy of the brain; that this diminution of energy induces debility; that debility induces spasm on the extreme vessels, which again proves in its turn an indirect stimulus to the heart, increasing the pulse and other symptoms, &c. *

For proving the truth of this doctrine it will naturally occur, that it is necessary to establish the three following propositions:—

- I. That the remote causes induce debility.
- II. That debility occasions spasm.
- III. That spasm excites particular increased action, enabling nature to resolve the spasm, and thus cure.

First, it is necessary to shew that the remote causes are certain sedative powers, which, when

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* Vide Dr Cullen's first lines.

applied, induce debility, and that debility is discoverable from the attendant symptoms, as languor, lassitude, &c. and the state of the animal and natural functions.—It is to be observed here by the-by, that though debility may occur, it is by no means evident that it gives rise to the subsequent symptoms.

When we observe the commencement of fevers, we may remark, as already noticed, that the debility consists more in an inordinate motion, not so subject to the direction of the will as in real weakness. The period at which patients are most weak in intermittents, is often after the sweat is over, which does not agree with this explication of the proximate cause; this is still much more striking in the continued fever, as in the typhus, in which the debility is less than in intermittents at the beginning, when patients are often able to go about for some days, even after increased action begins; and again, the debility succeeding the crisis is more in the first; but it is evident, that if the symptoms alledged resulted from debility, the debility preceding the fever should be more; and that, while debility existed, it should uniformly produce the symptoms of spasm, and an increased action.

Again, there are many causes of debility that are not causes of fever, as in dropfy, paralysis, &c. but these are never said to induce fever, and if it

occurs as in dropfy, it is an accidental circumstance. It is likewise to be observed, that there are many causes of fever that are not the cause of debility; thus measles, contagion, cold, tho' they may give rise to debility as a symptom, yet when they do not produce fever, they are never said to cause debility; nay, on the contrary, cold is always allowed to strengthen the system; from all which, I think it evidently appears, that debility is merely a concomitant symptom, and not a cause of fever.

If these reflections are just and well founded, it would be unnecessary to say more, as they would be sufficient to overturn the theory of spasm, as it is the basis on which the rest are built; but should we even allow these positions, the superstructure is still open, in my opinion, to unsurmountable objections which we shall now consider.

Second.—That debility induces spasm: This they are obliged to propose, more as a matter of conjecture than certainty; nor have they in the least taken notice of the connection of the two, or in what way debility produces it. The arguments for the existence of spasm are drawn from different phenomena in the course of fever, as stricture, stopping of hæmorrhages, paleness, of urine, &c.—Of the manner in which spasm is produced, they

have not spoken; there is a notion had recourse to on this head amongst the advocates for spasm, the manner and operation of the *vis medicatrix naturæ*, which is, however, very inexplicable: This mode of explication may be often serviceable to extricate us in solving difficulties which we cannot otherwise do, and may be said to be cutting the knot we cannot untie. The manner in which debility produces spasm has been attempted to be explained, from the sympathy between the surface and stomach, and which I think, if not fully, is, at least, much invalidated by Dr Jackson of London.

To the existence and consequences of spasm three subjects of enquiry present themselves:—

- I. How far there is evidence of spasm.
- II. How far there is evidence of its arising from debility.
- III. How far there is evidence of its operating as a cause inducing the subsequent symptoms.

With regard to the first proposition, it may be observed, that from the symptoms already enumerated, there must be a certainty of a spasmodic stricture; and that, from a sense of stricture alone, diminution of appetite and state of secretions; but this, after all, cannot be said to be a general affection, it being merely transitory; it often begins at one part and ceases at another, and affects different parts in succession, in the course

of the fever. In some instances, there happens a total relaxation of the surface; in some a small sense of coldness, followed by a profuse sweat, which at last, the febrile symptoms increasing, has terminated fatally: Thus it appears that the spasm is irregular, taking place at different places and at different times.

The second enquiry is, whether it proceeds from debility; this is by no means evident, spasm being a muscular action, must be certainly the effect of stimulus, as volition cannot be supposed to be concerned. How debility should prove a stimulus is not so evident, as others may be easily supposed to exist, and may occasion the variety and irregularity observable in spasm.

The third subject of enquiry concerning spasm is, that, when it exists, how far it can be the cause of increased action and subsequent symptoms: Many of these, and even some of the most essential circumstances in fever, cannot be supposed to be a consequence of spasm; such as vomiting, anxiety, delirium, &c. especially as we see these induced by causes quite different from spasm, as by drinking, &c.

The third position necessary to be established is, that spasm of the surface occasions increased action.—That increased action takes place is accounted for from the heat, acceleration of the

pulse, &c. This doctrine is attempted to be particularly supported by the appearance of cold bathing, in which, in consequence of the spasm of the surface, increased action follows; but in fever, the increased action follows and continues after the spasm is gone off, which is quite different from what happens in the cold bath, where increased action ceases with the spasm.

Again, in many instances of fever, increased action does not take place at all, which is easily known from the state of the impetus of the blood, discoverable by the small and slow pulse, so that here no spasm can exist at all; or if it does, it has not produced the symptoms usually ascribed to increased action; besides, when spasm is present, it should not produce general increased action; This, however, is far from being the case, for the feet are found often very cold, while the face is flushed, with accelerated pulse, which shew that the irritation is general.

Thus it appears that the doctrine of spasm is not more reconcileable to the causes inducing fever than the phænomena attending it.

As all the above *theories* are liable to insurmountable objections, every other that might be proposed is no less so; none of them can direct us properly in practice, and some of them have had pernicious influence.

As these theories are found insufficient, I hope it will not be thought arrogance to hint at a new one with diffidence.

To me it appears that there is *a morbid condition of the brain* in fever; and this I suppose from the symptoms, as a sense of cold, when there is no actual increase of cold at the time; and from anxieties and delirium, or a confusion of the head, which, in all fevers, happen to some degree. There is evidently, in all, an affection of the sentient principle; but in what manner affected we cannot so clearly say, as the symptoms induced discovering this condition are the first; it is probable it is occasioned immediately from the remote causes: We from this see how it arises from passions, and from causes giving peculiar impressions to the nervous power. The remote causes are such as may be supposed to produce this morbid condition, and even go so far as to attribute to it all the symptoms essential to fever; some of the symptoms are mere circumstances, and the more immediately essential ones are not very numerous; as cold, anxiety, febrilis, and confusion of the head; and to me the others seem to result from the same cause, viz. the quick pulse, febrile debility, and inordinate action.

The quick pulse may be produced from many causes; it may arise from a morbid condition of

the brain, as its tendency to action may be affected by the causes affecting the brain, as palsy, &c. There is more room for doubt in case of heat, for this is a real, and not an imaginary sensation; this, however, must depend on the generating cause of heat in the body; and no two physiologists agree in it: It will, nevertheless, be allowed, that increase of heat attends augmentation of pulse. The thirst is the production of very remote causes; this is allowed to be connected with a particular state of the fauces and condition of the secretion, which imply the state of the nerves employed in secretion. Debility, about which there has been a great deal said by the advocates of the different theories, is the last symptom necessary to be accounted for: We have already observed that it rather consists in an inordinate power of action than in any thing subject to volition or real weakness; and this we must refer to the nervous power, and not to the condition of muscular fibres; this may be proved by attending to accidents affecting the state of the brain, as change of posture, where we may see that a patient can move himself with a considerable force in an horizontal, and yet cannot in an erect posture, which I think may be imputed to an alteration of circulation in the brain; this demonstrates that a morbid condition of the brain exists, which may be looked on as a necessary consequence of the remote

causes, and to afford no improbable explanation of the essential symptoms; and, in one sense, I think it may be called the remote cause; but, after all, this makes no progress to explain, if we cannot say in what this morbid affection consists; this is, however, a hint that I hope will be prosecuted with more accuracy and demonstration, by some abler pen.

S E C T. VII.—*Cure.*

With regard to the cure in fever, it may terminate favourably in two different ways:—

- I. By an operation of the system itself gradually effecting a cure.
- II. By obvious evacuations.

What occurs in fever, points out the necessity of referring the practice to two ways; to an artificial and natural termination.

It is often the case that fevers are cured artificially, as intermittents, and perhaps sometimes the continued, by bark; but these are said to be oftener cured by sudden commotions, as by emetics; and by bathing, if the practice of the Indians can be depended on, who after exposing them to a vapour bath, afterwards plunged them into a cold bath. On the other hand, it is said by

some, that more of the continued are thus artificially cured. We cannot say, that we have any thing capable of curing in all fevers.

The measures necessary to be pursued in the cure of fever may be referred to three general heads.

I. Those necessary for obtaining an artificial termination.

II. Those necessary for aiding a natural termination in a favourable way.

III. Those necessary for the mitigation of urgent symptoms.

In obtaining all these, different means must be used, as the fever occurs joined with the inflammatory or putrescent diathesis, as well as that of the intermittents, which dispositions are pointed out by the ephemera, synocha, typhus, and intermittents; the symptoms and cure in each we shall now proceed to consider separately.

CHAP. II.—*Ephemera, or simple Fever.*

In the strict sense of this word, it may be considered as terminating in twenty-four hours; but I mean here simple fever without regarding its duration, though generally, if it consists only in one paroxysm, it seldom exceeds thirty-six hours.

Symptoms.—This, of all fevers, approaches nearest to the paroxysm of an intermittent; the cold fit here seldom goes the length of shivering; there occurs affections of the stomach, as nausea, vomiting, &c. the heat succeeding the cold is to a greater degree than could be expected from it; and the transition from the cold to the hot stage is attended with flushing, paleness, head-ach, or confusion of the head; no inclination to sleep, or, if it occurs, is not refreshing; thirst supervenes, and although there is no alteration in the colour of the tongue, yet, in this fever, it is dry; if a vomiting takes place, it is induced by the liquors taken to allay the thirst; the pulse is quick, but respiration is seldom difficult; though this is not common, it is attended with pain in the breast: The skin at length becomes soft, and a moisture supervenes; and, with the sweat, the symptoms are abated, as vomiting, &c.—It is seldom finished in less than eighteen hours, nor takes up more than thirty-six.

Sometimes, like other fevers, the paroxysm returns, and sometimes with the accession of the cold fit; but this, very often, can be scarcely marked; it is known, however, by the head-ach, corrugation of the skin, and other subsequent symptoms.

As there is variety in the attack, no less occurs

in the termination ; sometimes finishing by a little moisture, sometimes by hæmorrhages, at other times by a copious sediment in the urine.

In whatever way it terminates, it is seldom of long continuance, continuing rarely beyond the fifth day ; if of longer duration, it assumes either the inflammatory or putrescent diathesis.

Prognosis.—In general, the effects of nature are capable of terminating this favourably ; when it is fatal, it is generally from its running into some other kind of fever ; sometimes it runs into hectic, from trifling causes, as the stimulus of meats ; it coming on, in such cases, generally after dinner : When it degenerates into typhus, it is not so quick, and arises generally from putrid fumes generated about the patient, from not changing the clothes frequently, &c.—In this fever, medical art is seldom necessary.

Cure.—In this, the sole aim must be to aid nature to a salutary termination ; and this is to be directed by the treatment in the different symptoms as they occur, which we are now to consider. And first, of the

Treatment in the cold stage.—Unless this be very severe, we should do nothing ; when vomiting occurs we should encourage it by mild provocations, as by tepid diluents ; sometimes the patient is unable to suffer the sensation of cold in the legs, and then it must be alleviated by the application

of warm bricks, tho' they require caution in their application till they be removed.

Emetics—have been proposed, but which, I think, are not admissible; and if there be fordes in the stomach, they may be wrought off with tepid water or chamomile tea.

Treatment in the hot stage.—Here we must mitigate the disease, and shorten the duration of the hot stage. It would appear that great heat is not necessary to the production of sweat. Dr Saunders maintains that there is a particular point called the *sweating point*, that can only answer this purpose, and that all above and below it are unfavourable; though I do not agree with him in all his ideas on this subject, I am, however, satisfied that great heat is not the most favourable for inducing sweat; when we wish to encourage sweat, we may sometimes do it by cold drink, as with lemonades, cold water, &c. but this is only necessary when there is a tendency to inflammation.

The air of the chamber should be kept temperate, and the patient kept slightly covered; some part of the extremities may even be exposed with some advantage to the air in the room; by these means we shall produce a sweat very readily.

Diaphoretics of the most gentle kind (avoiding all such as stimulate) should be used, which produce their effect by relaxing the surface; for this

purpose, the tepid bath and *spiritus minderi* may be used; after the sweating takes place some nicety is necessary in regulating it, as inconveniences may arise from too little, as well as from too much of this evacuation; it is very various, often effecting a resolution in an hour, and often much longer; we must attend to the state of the pulse, continuing till it is reduced to its natural standard; at the same time attending to the alleviation of symptoms, as of anxiety and confusion of head; the sweat is prolonged by warmth of bed, by keeping the body from motion, and exhibiting tepid drinks; we are to diminish the sweat in a gentle and cautious manner, as by a sudden check, we might do mischief by cold; this is to be done by lessening the quantity of the bed clothes; then the patient may move in bed, and the feet lightly covered.

With the termination of the sweating fit, the fever may be said to be cured.

CHAP. III.—*Synocha*,

The essential nature of this disease is an increased action of the whole vascular system, without local inflammation.

Symptoms.—In synocha, the patient is first attacked with a weight about the breast, and pain in the bones, which are of a more transitory na-

more than those in rheumatism, neither are they confined to the joints; to these succeed a chilliness, which is so severe as to produce shivering; this is succeeded by heat, and this is more evident than in any other modification of fever; the pain in the shoulders, back, and head, is very severe, though not painful to the touch; this is not of long continuance in one part; the pulse is quick, strong, and hard; but at the same time very regular, which characterises the disease; the respiration is quick, and the breath hot; this may be attributed to the heat the air receives in the lungs, as the heat is so intense; the heat is attended with redness and swelling of the skin, and a flushing in the face; the tongue is generally white in the beginning, but gradually turning of a darker colour; the eyes become impatient of light; parched skin; the secretion by the surface is very much diminished, and the discharge from ulcers is suppressed and become inflamed; there also occurs a great aversion to food, and an inclination for liquids. In this state of the fever the brain is evidently affected, which is known by the vertigo and delirium, on the slightest motion, which is of the phrenetic kind; watchfulness and disturbed sleep; costiveness is also an attendant symptom. The *anxietas febrilis*, although it exists in synocha, is not so great as in typhus; the excretory discharges are also affected; the urine is

scanty and high coloured; the blood, when drawn, has more or less of a buffy coat, and a greater proportion of crassamentum than is common to the serum, which is also more tenacious.

These are the leading symptoms in synocha, and any other that may arise during its continuance, are in consequence of its degenerating into typhus.

These symptoms generally run their course in eight days; but the fever often exists for thirteen or fourteen days. The crisis is generally marked by an aggravation of all the symptoms which precede the critical evacuations, tho' it may likewise be a fore-runner of death.

The crisis is sometimes by sweat. Friend says this is not critical; but this assertion is contradicted by the most experienced practitioners, who take it to be the most common critical evacuation; it is also terminated by hæmorrhages, particularly from the nose; and likewise by diarrhœa; urine, with a copious sediment, is also said to be a crisis, but this, I believe, is very rare.

Synocha is very often carried off without any particular evacuation, as by a long sleep.

Diagnosis.—There can be no danger of confounding synocha with any other febrile affections, than with those attended with topical inflammation, which appearance indeed it at first generally puts on; but it soon discovers a different set of

symptoms: This is to be gathered from the history of the phlegmasia. When local inflammation is absent, there is only then a danger of confounding it with other fevers. The symptoms of heat in synocha are much greater than in typhus; and, in the latter, the pulse is small and weak, contrary to what occurs in synocha; there is less difficulty in distinguishing it from ephemera; when this terminates in one day, there can be no difficulty; but when it continues, there may be more. In ephemera the termination of the first paroxysm is more compleat than in synocha, and after the first paroxysm the pulse is not so intense. Synocha occurs in the prime of life, and more with males than females, and also with those liable to hæmorrhages; there is also a separation of gluten in the blood of patients in synocha. Ephemera is more common in temperate climates.

Prognosis.—This fever, in general, if well treated, is not fatal; if it arises from errors in diet, especially if from an overheat, it is soon carried off; the pulse varies so much, that it is impossible to draw any presage from it; persons in their youth, and those of great nervous sensibility, are remarkable for having a quick pulse. I once knew a patient whose pulse was altered from 120 to 160, by only raising himself in bed; and also

when there are any symptoms of coma, the pulse is changed as far from its natural state, that it will be both slow and soft, and at the same time the patient in the greatest danger. *Apthæ* is a favourable symptom in children, as they often carry off delirium. A pain in the forehead is no unfavourable sign, being so common; but if the pain should be in the back of the head, it is a very dangerous symptom. Bleeding at the nose is often presaged by an itching and redness of it; in inflammatory flushing of the face, *tinnitus accrium*, itching of the skin, and inflammation of the belly. Hippocrates says, that if there be a few drops from the nose on the fourth, there will be a critical hæmorrhage on the seventh day: Tho' I have seen this fall out more than once, I have known it as often fail; obtuse pain in the neck and involuntary tears, also presage an hæmorrhage from the nose.

It is an unfavourable symptom if the thirst abates, and the other symptoms continue, especially a dry tongue; and also when the urine, from a deep red, becomes black, or of a clearer limpid colour, delirium and convulsions may be expected; but in forming a prognosis from the latter symptom, particular attention must be paid to the quantity of liquid the patient drinks; sudden change of voice, especially to the shrill, or, as it is called, the *vox clangosa*, is a very bad symptom;

whatever shews a congestion of the viscera, is unfavourable, especially if in the head; delirium is a common symptom in young people; and if attended with coldness in the extremities, and other unfavourable symptoms, it shews death is at hand; particular sweats about the head and breast are bad, as is also grasping of the bed-clothes; it is also dangerous to see the patient lying on his back; and the same may be said of difficulty of breathing, as it evinces a particular affection of the lungs; hiccup cannot be ever a certain mark to judge by; but if it is accompanied with other bad symptoms, it is dangerous, tho' I have known it continue three days without a fatal termination. Involuntary evacuations in a delirium, putrid diarrhoea, with a quick pulse, prognosticate immediate death; red swelled eyes, presage delirium. When a patient lies quiet in bed without speaking or sleeping, yet, when spoke to, answers sharply, and at the same time, if touched, draws back his head suddenly, it is a fatal symptom; all colliquative sweats, that are not critical, are bad, especially if the heat is greater than might be expected from the quickness of the pulse, and that pulse weak. To judge of the heat of a patient, some part should be felt that has been covered with the bed-clothes, and by the application of a thermometer, which should always be kept fix or

eight minutes to the part; if after the remission, the tongue is soft, red, and clear, there is danger from a *phthisis pulmonalis*, or hectic fever; if the tongue become suddenly soft, red, and clear, whilst the fever is high, it presages apthæ; and if at the same time the patient complains of a burning heat in his throat, it is a proof that they are already there; too great sensibility to light, or too great insensibility, are both unfavourable symptoms; but when accompanied with inflamed eyes and delirium, it presages death; delirium in children, proceeding from a foul stomach, may be often removed by a single vomit; redness of the face, only shews a great quantity of blood in the head; but if the colour go and come alternately, it presages an affection of the lungs; slow full breathing, especially if there be a stop at the end of every inspiration, is bad; uneasiness upon the least motion, is a bad symptom; and if hæmorrhages give no relief, the symptoms are aggravated.

The Cure.—The objects to be aimed at in the cure of synocha are,

I. To remove or moderate all stimulating causes which tend to induce or keep up the fever.

II. To diminish the increased action of the vascular system.

III. To restore a natural condition to the different secretions and excretions.

IV. To obviate urgent symptoms.

To remove it artificially would be preferable, if it could be done without danger ; but here this is perhaps not adviseable, the artificial cure being attended with greater danger than in any other species of fever ; hence the bad effects of emetics, if exhibited before depletion is brought about. I have already hinted the state of the belly to be particularly costive. I cannot say that fevers have been often cured by concussion, for fear of topical inflammation, and for that reason tart, emetic, and James's powder, have in general been rejected ; the chief view, therefore, is to mitigate symptoms and aid nature ; the increased action is to be dreaded, as well as the suppressed excretions.

Blood-letting cannot be used with greater advantage in any species of fever than in synocha, and is preparatory to the use of other remedies ; it takes off the plethora, heat and anxiety, and that oppression so natural in the beginning of synocha. In cases that arise from violent exercise, overheating, and hard drinking, one large bleeding often cures the disease, by bringing on a sweat in a few hours. Bleeding often has great effect ; it softens the pulse, removes obstructions, and makes at least temporary revulsions from the part

affected. Sometimes though the patient requires bleeding, all the febrile symptoms are increased by it, except the anxiety; this is partly the case in that plethora which obstructs the circulation, and is indicated by a labouring oppressed pulse. Now in this case bleeding has the best effects; but it is of the utmost importance to distinguish whether this pulse arises from the weakness of the *vis vitæ* or from plethora.

With respect to the time for bleeding, it is undoubtedly best at the beginning; but if the inflammatory symptoms run high, and morbid congestions are expected, especially topical affection of the head, blood may be taken at any time. When a woman upon being seized with a fever, or during the course of it, is affected by the menses, I am in general at such a time very cautious of bleeding; but sometimes in these cases it is highly necessary, and not only relieves the febrile symptoms, but does not put a stop to those natural evacuations, which we may observe that they never of themselves contribute to carry off any of those febrile symptoms: besides, we cannot well imagine that a woman discharges above two ounces of blood at a time, which is not near the quantity we are obliged to take.

Bleeding is generally useful in strong, vigorous habits: there are some people however who appear weak and sickly, who are apt to be plethoric,

that bear bleeding very well.—It may be often repeated, but then a small quantity must be taken at a time.

Those people who have been used to bleeding often, will bear it much better than those who have not; this peculiarity in the constitution must be attended to: thin people bear bleeding better than fat people.—An inflammatory diathesis prevails much more in synocha in the spring than autumn, and of consequence will bear bleeding much better; a full, hard, and tense pulse, almost always indicates bleeding: it has generally been said, and if, after opening a vein, the blood runs more freely when four or six ounces have been taken, that this indicates the propriety of copious bleeding; but so much depends on the orifice, or ligature, that it can scarcely be depended on. Children bear bleeding worse than patients in the prime of life, and bear this evacuation worse than any other: therefore, in children, I should not bleed, unless I suspected an inflammation of the head. Fatal effects have followed letting blood flow from children after the leeches are removed. We should be as careful in knowing the quantity we take from children by leech as by the lancet; old people do not bear the loss of a great quantity of blood; but if taken in small quantities, it is often attended with beneficial effects. Patients in cold climates can bear the loss of blood better

than those in hot climates: it is an absurd rule to bleed *ad deliquium animi*, as some weak patients, women especially, before they fainted, bear the loss of as much blood as would occasion death.— To prevent fainting, lay your patient in bed, and stop the orifice from time to time; if bleeding be indicated only by the plethora, it matters not where the blood is drawn.

Bleeding, tho' attended with so many advantages, is not without objections; it seems not to be suited to the state of the brain, and where there is a tendency to putrescency.

Emetics may be used when depletion by blood-letting has been previously obtained, as they are often the means of an immediate cure. They are seldom, however, employed in this country, with this view; and when otherwise intended, do not always produce the effect. They are beneficial in removing sordes from the stomach, which remove the cause of irritation; and Sydenham says, their use at the beginning prevents diarrhoea towards the end of the disease: the use of gentle vomits, as warm water, or chamomile tea, are best; but when these fail, I hold ipecacuanha to be preferable to antimonial emetics, as the latter do either too much or too little, and affect the alimentary canal, which is avoided by the use of ipecacuanha.

Cathartics are indicated for the purpose of cleansing the great and small intestines, as vomits are for freeing the stomach of fordes.

I think *emetic tartar* an excellent cathartic, given in small doses ; it is dangerous to give a strong purgative in the beginning of fevers, lest it brings on an inflammation of the viscera. I generally give a gentle purgative of either Glauber's salts or manna ; and, during the fever, a stool should be procured every day, either by laxatives or clysters.—Clysters often relax and cure diarrhœas, whose seat is in the great guts, and have all the good effects of the warm bath.

Refrigerants must be also used to diminish increased action, as by the nitrous mixture, acidulated drinks, or other diluents ; for by producing a gentle diaphoresis, we may do much service, altho' a profuse one is extremely hurtful.

Pediluvium is exceedingly useful where the feet are parched and dry, and often induces a gentle diaphoresis.

Fomentations of the feet have been generally preferred to the former, and may be continued for half an hour. With respect to the practice of *pediluvium* in synocha, it may be of advantage under certain circumstances ; but as it must subject the patient to an erect posture, which may readily occasion *deliquium animi*, and which would

be productive of more disadvantage than the good that could be expected from the bath; for this reason I prefer fomenting the feet and legs with flannels wrung from tepid water; although, in my practice, I have used it sometimes with advantage, and at other times with inconvenience, and even danger; for, although the water seems only tepid to people in health, yet it gives great distress to the patient labouring under fever. In the savage nations amongst the American Indians, they first raise a sweat by the vapour of a bath, and immediately afterwards plunge the patient into a river, then rub him dry, and put him to bed; but such practice is rather to be mentioned than recommended.

Antispasmodics have been recommended in synocha, but I think with very great impropriety, as they stimulate too much: I would, on this account, avoid *serpentaria*. Musk is a thing of small importance; and camphire, so much cried up by Hoffman and all the German writers, if given in small doses, can do little good, and if in large doses, it heats too much, and induces nausea; castor is equally inefficacious, and disagreeable on the stomach.

Blisters may be employed with advantage, but are very improper in the beginning, as they quicken the pulse, and increase other febrile symptoms; but, where the pulse sinks, and the

head is affected, especially if there be torpor, and an evident inertia of the nervous principle, blisters may be used with advantage, not I think as antispasmodics, but from their counteracting inflammation when fixed pain is in any part.

In the beginning of a fever, I would always shave the head, as this circumstance, besides being preparatory to a blister should one be wanted, very often prevents delirium, and always gives great relief, especially if the head is washed three or four times a day with vinegar and water.

Opiates, as long as the febrile symptoms are high, are improper, as they increase delirium and head-ach; but if the patient is much weakened for want of sleep, and blisters and blood-letting have been premised, they are then very useful in counteracting long watchfulness, and may be given with safety.

Regimen.—The diet should be spare and refrigerant, and taken chiefly from the vegetable kingdom; as acidulated drink, cold water, free air, and a cool temperature. On this head, however, I shall refer the reader to my observations on dietetics; the cloathing should be thin, and frequently changed; the posture of the body should be nearly horizontal, with the head a little raised; nay, I believe, in delirium, sitting up in bed would

be attended with good effects; and if the patient has strength to bear this, it should be practised.

CHAP. IV.—*Typhus.*

Under this head some have comprehended,

I. The *slow fever*, without severe symptoms, with the remarkable *anxietas febrilis*.

II. *Nervous*, when attended with a putrid tendency and convulsions, particularly about the face.

III. *Putrid*, when putridity occurs, and also hæmorrhages from the nose and mouth, petuhia and vibrices.

But I think all these may be comprehended under the head of typhus, and are only different modifications of the same disease; in the last species there is a peculiar fætor in the stools of the patient, and also in the breath, as well as in any discharge taking place from the surface; I do not, however, imagine that putrescency is the immediate cause of the febrile symptoms; hence a degree of putrescency in the blood is not the immediate cause of fevers; putrescency may occur to a great degree without any fever. The accurate and diligent Dr Duncan published a case, where petuhia and vibrices occurred without any fever.

Symptoms.—These are various, and are put on according to the modification of the disease; it is generally preceded by a lowness of spirits, want of appetite, disturbed sleep, oppression, and anxiety, not so much a difficulty of breathing, as a sobbing and sighing; as it advances, there is great languor, slight alternations of heat and cold, lassitude, giddiness, nausea, and vomiting of a tough, insipid phlegm; these are symptoms that come and go, but are generally increased in the evening, attended with vertigo and oppressed pulse; in the day-time, the pulse is not quicker than ordinary; there is also a coldness and weight in the back of the head and along the course of the coronal future, which indicates a delirium coming on quickly. As the disease advances, the pulse quickens, and grows more fluttering at intervals, and at other times quite slow; the face flushes, the hands are hot, and the forehead in a cold sweat; the nose and eyes are cold, with all the marks of a flow of blood to the head; urine pale and limpid; the tongue is moist, and covered with mucus; great sensibility of all the senses; after the 6th or 7th day the above symptoms are increased, with synocha, if agitated; partial cold sweats in the forehead and face; the urine hot and clear; universal tremors, and *subfultus tendinum*; the delirium never violent, and the patient can almost always give a rational answer; the tongue

is dry, and trembling on being put out; yet the patient does not complain of thirst; the symptoms now exacerbate; the extremities become quite cold; the pulse trembling and intermittent, so as to be scarce numbered; the patient now becomes lethargic; the urine and stools are discharged involuntarily; the *subfultus tendinum* increases, and the patient is carried off by strong convulsions. This fever generally terminates in twenty days; but if putrescency come on, the pulse becomes more irregular; great thirst and flushing, uneasiness and great alarm from sudden noise; *delirium animi* of the lowest kind. Petuhixæ are uncertain as to their time of appearing; sometimes they come out between the fourth and fourteenth day, and scarcely rise above the skin, and are not to be perceived but by the skin growing on a sudden red; they are of all colours, between a dark red and a purple-black, and the blacker they are the worse; they are most plentiful in the breast and back; and if the patient happens to be bled, they are seen no where else. Hæmorrhages take place from the nose and mouth, foetid stools, and a black crust forms on the tongue and teeth. Many other symptoms might be pointed out, but these are the chief.

This fever has no regular crisis, and is as often carried off by a warm breathing sweat as by any

other way; it is not seldom the patient sleeps it away.

Diagnosis.—It is often difficult; and if the idea we have given of the disease be a just one, it is not surprising that it is not more frequently produced by contagion; it may be distinguished by the slow progress of the symptoms; and the affections being chiefly of the mental kind, mark the disease; but it is still better known by the smallness and quickness of the pulse, as also by the fætor in the breath and stools, and by the hæmorrhages and petuhæ.

Prognosis.—The course of a well-formed typhus is various; its termination is often fatal, and generally is so about the eleventh or twelfth day; but if the patient out-live the fifteenth or twentieth day, he frequently recovers. To determine what kind of termination there will be, is difficult, as patients may be suddenly cut off; therefore, a wise practitioner should not be too rash in giving a favourable prognosis. It is always favourable when the tongue and skin become moist; after the fever has continued some time, accompanied with sweat, the urine at the same time depositing a sediment, a favourable issue may be expected; it is also good, when the pulse begins to grow strong, and the patient recovers his appetite, with longing for certain food; and when the belly becomes loose, that was formerly

costive; we have some symptoms occurring here as in other diseases, as hiccup, which is often unfavourable; so is also convulsion, occurring late in the affection, with great *deliquium*.—Where; however, these symptoms have taken place to a great degree, yet the patient has recovered; and altho' the convulsions are absent, the patient may still be suddenly cut off.

The Cure.—This is to be attempted by endeavouring,

- I. To remove all causes inducing and supporting a putrescent state.
- II. To obviate or correct the putrescency already present in the system.
- III. To support the *vis vitæ*.
- IV. To obviate urgent symptoms.

A gentle emetic in the beginning of typhus is very proper; for tho' there is a great quantity of acid bile collected in the intestines, yet there is a great anxiety, nausea, and sometimes vomiting; now all these symptoms are relieved, if not carried off, by an emetic, which besides strongly promotes diaphoresis; and if a gentle vomit be given in the course of the disease, it greatly assists in promoting the natural salivation; it is to be observed, that when this salivation is not copious, and the patient at the same time comatose, which

often happens, that the saliva, by not being discharged from the mouth, falls back into the stomach and fauces; and by being collected there, forms in the stomach tough phlegm, and occasions almost absolute strangulation, by stopping up the throat and fauces; in this case a gentle vomit is highly useful; as a vomit I would prefer ipecacuanha to antimonials, the latter acting with so much uncertainty.

Cathartics, for evacuating fordes from the intestines, are useful; but to evacuate from the general system is dangerous, and therefore practitioners ought only to employ gentle laxatives or clysters to obviate costiveness.

Venesection is liable to many objections, and is perhaps never to be admitted, by its evacuating too much from the system, especially when employed towards the end of the disease; topical bleeding may be sufficient, and as far as we dare go, which may be done by leeches, cupping, &c. on the breast, temples, &c.

Blisters have been employed in the beginning, when there has been great pain in the head, dyspnœa, or even when the circulation seems to be difficult; they are certainly improper so early, as they increase delirium, trembling, and *subfultus tendinum*. Upon the whole, I think they should

never be employed except where there is great local affection.

Antiseptics have been greatly employed, as the cortex Peruvian, which, in my opinion, must be attended with considerable benefit, and experience confirms it; the mode of using it is this,

I. To give it in substance.

II. With respect to the time of giving it, we should wait till the inflammatory diathesis is gone off, which is generally about the third or fourth day of the disease.

III. The dose should be as much as the stomach of the patient can well bear.

IV. To continue the use of it for some time after the cure, to prevent a relapse.

The Mineral and Vegetable acids have often obtained a perfect cure, in the form of elixir vitrioli and ripe fruits, as apples, both of which are powerful antiseptics, and should never be omitted; they may be given in conjunction with the bark.

Cold Air has great effect in preventing the putrescency, and therefore the windows and doors of the room should be kept open for the free admission of fresh air; the bed to be placed in the most airy part of the room, avoiding the steam of cold air to any particular part.

As a cordial, there is none preferable or equal to wine, as it answers the purpose of every other, and at the same time is the most agreeable; if used judiciously, it renders every other cordial unnecessary. It was favourably spoken of by Hoffman, who says, *et quidem in febris malignis vino nil datur excellentius; malignitas dignoscitur ex motuum et vireum defectio; nec non valde depressa sanguinis spiritusascentia, ex tardo circulo ejusdem, quæ cuncta dispositionem quandam cruoris ad putredinem designant, igitur in iis morbis restaurare vires, spiritus erigere, circulum sanguinis liberum reddere, transpirationem movere expedit; et in eo versatur omnis alixipharmacorum virtus: quod autem vinum hæc omnia præstet, nolumus pluribus auctoritatibus, quibus practicum libri sunt pleni, confirmare sed confugimus ad solam experientiam qua nobis constat plures ex malignis evasisse solius vini moderato usu.** It has been used by Dr Gilchryst, of Dumfries, in the species of what has been called nervous fever. Wine should be given sparingly at first, and increased gradually to a bottle in the twenty-four hours; the best wine is rhenish; but port wine is more easily got. When wine has disagreed with the patient's stomach as a cordial, I have used in my own practice the camphorated julep, with very good effects.

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* Vid. Frid. Hoffman Dissert. Phys. Med. ix.

Amongst cordials, the *confectio cardiaca* was formerly used; but it is inferior to wine, and when this fails, camphorated emulsions may be employed, as appears from its specific virtue over animal matter; but some stomachs are not able to bear it; though, when they are accustomed to it, they become fond of it.

Opium has been as much extolled as wine, and is particularly recommended by Dr Gilchryst for allaying pain and procuring sleep; when the patient has been subject to long continued watchfulness, fixed pains, and other urgent symptoms, no article is more powerful than opium; in this fever it may be productive of excellent effects, altho' I can by no means agree with Dr Walls, who, in his treatise on opium, holds it forth as curing the disease artificially or radically; altho' I have seen great benefit from it, yet I am no advocate for its promiscuous use, as I have found it, in certain cases, encrease the *anxietas febrilis*, augment the thirst, and bring on a dry and parched state of the tongue and skin, and greatly augment the heat; so that I would advise a cautious use of it, and exhibit it only as a sedative, counteracting long continued watchfulness, &c.

Many advise the diet to be of the nutritious kind, on the supposition that this fever depended on debility; it has been recommended to overcome that debility by strengthening and support-

ing the system by nutritious diet, such as by solid animal food, or animal broths; but the great aversion to all solid foods, and the weakness of the stomach, occur as insurmountable objections to this; and, upon the whole, I would not advise such a method of cure.

The secretions must be kept up, and perspiration promoted by bathing the ocular parts with tepid water; particular attention must be paid to cleanliness, as shifting the bed and body linen frequently, and keeping the mind tranquil and easy, as proving an irritation to the whole system; the retention of urine must be guarded against, and when it is difficult to be passed, the catheter must be used; but fomenting the pelvis and other such means must be had recourse to before using the catheter.

Free air must be allowed to enter the chamber in particular, and the food should be apples, barley, and thin diluent drinks acidulated; food should be frequently offered, and, when craved, the patient should not be denied.

C H A P. V.—*Intermittens.*

A succession of febrile paroxysms, and between which there is a perfect apyrexia, is called an intermittent.

This disease occurs differently in different habits, and under different modifications, which have given them different generic terms; but I consider that intermittents have only one genus, and differ in nothing but in their modification, and that there is a great similarity in them all from being in the same constitution, season of the year, &c. The intervals between each paroxysm have variations; a quotidian observes an interval of 24 hours, a tertian 48 hours, and a quartan 72; other genera seldom occur.

The best method of distinction is to divide them into vernal and autumnal; for this leads to practical utility. In the vernal intermittents the inflammatory diathesis prevail; in the autumnal, the opposite.

Symptoms.—Each paroxysm may be divided into three different parts, as the cold, hot, and sweating fit.

The cold fit begins with a strong sensation of cold, occasioning partial and irregular shiverings, which in a short time become universal, and severer than in continued fevers; the surface turns pale and shrivelled; the pulse is small and weak, frequent, and irregular; the other symptoms that attend the cold fit are anxiety, palpitation of the heart, difficulty of breathing, cough, bitterness, of the mouth, thirst, nausea, and oftentimes vomiting of bilious matter, especially in autumnal

agues; the urine clear and in small quantities; great insensibility, and all the functions weakened and impaired; the duration of the cold fit is uncertain; but generally terminates in fifteen or twenty minutes.

The hot fit comes on by degrees, and often with alternate fits of chilliness and heat, which soon becomes more severe than it is in synocha; these symptoms are attended with thirst, head-ach, eyes turgid and impatient of light, flushing of the face and skin, delirium, and sometimes coma, anxiety in a smaller degree, breathing free but quick, the pulse not so frequent as in the cold fit, but full and strong; the urine high coloured; the blood, if drawn, very various, and differs in vernal and autumnal intermittents. The violence of the hot fit is often in proportion to that of the cold, but this does not always hold; the duration of this fit is uncertain; sometimes the sweat breaks out with the hot fit.

The sweating fit, which is generally profuse, succeeds the hot fit; and this relieves all the febrile symptoms; the urine now deposits a lateritious sediment; but this symptom is not peculiar to agues. The paroxysms of quartans are often not terminated by a sweat, but leave a lassitude, and a sensation as if the body was bruised.

Diagnosis.—It may be known easily by the perfect apyrexia that takes place.

Prognosis.—Though the symptoms of quartans are mildest, yet they are the most obstinate and aptest to relapse.

Particular eruptions about the mouth, and sometimes a salivation, abscesses, cutaneous eruptions, and swelling of the legs are salutary.

It is reckoned a favourable circumstance when the paroxysm is postponed beyond its ordinary time; on the contrary, it is an unfavourable symptom when the paroxysm comes on sooner than usual.

Intermittents are the most dangerous in warm climates, where they are apt to run rapidly into typhus.

The longer they are in duration they are the more difficult of cure, and the greater dread of obstructions of the viscera.

The vernal intermittents are not so dangerous as the autumnal; and the tertian less dangerous than any other, and easier cured.

The Cure.—The treatment of intermittents may be referred to five general heads,

- I. To mitigate and shorten the paroxysm.
- II. To obviate urgent symptoms.
- III. To obtain a compleat apyrexia.
- IV. To prevent a return of the paroxysm.
- V. To prevent a return of the disease.

Emetics, at the beginning, carry off viscid bilious matter, and as this is an exciting cause, they have good effect in this light; but we know that vomits, acting on the stomach, greatly affect the nervous system; they are powerful antispasmodics; hence they induce diaphoresis, and are always necessary to pave the way for the exhibition of other remedies; besides, they mitigate the hot, and shorten the cold fits. Sydenham orders them to be given so as their operation may be over before the cold fit begins, by which means it either prevents or mitigates the succeeding fit; some are for giving them in the cold fit; but when we consider that the blood has left the extremities, and is chiefly in the viscera, I would be much afraid of exhibiting an emetic in the cold fit, lest I should be in danger of bursting a vessel, especially if my patient was not very strong; however, I would have no objections at this time to give chamomile tea or warm water; I would prefer tartar emetic to any other vomit, given in doses of half a grain or a grain every hour, by which mode it may prove both emetic, cathartic, and sudorific.

Antispasmodics have been used with an intention to procure a sweat; here mildest ones are best, and should be given before the cold fit comes on.

Opium, when given, often induces a copious sweat, and there are few instances in which it should be neglected; and this can only be where complete intermissions do not take place; it is a medicine that has been greatly used by Dr Lind in the cold fit; but it is not so essential here as diluents.

Other means of promoting sweat are useful, as fomenting the feet, warm bathing.

Diluents are also used; but it is dangerous to force a sweat by violent medicines; however, in the beginning, or rather in the cold fit, I would put the patient into bed and give him diluents, as warm water moderately acidulated, having previously bathed the extremities in warm water; diluents must be given in the cold fit, in small quantities, but increase them as the hot fit comes on. When there is any appearance of inflammatory diathesis, sack whey, with the *spiritus corn. ceres.* is very improper, as it may occasion inflammation of the viscera; drinking warm water a little before the cold fit, has sometimes prevented it altogether; I would chuse to give the warm water impregnated with a small quantity of neutral salts, as the common saline draught, or *salis ammon. crud.* the latter is accounted an excellent remedy in agues, combined with the bark, but I here only speak of it when given with diluents immediately before the fit; the *spiritus minderin* may be given in this stage also with propriety;

as these medicines prove not only anti-emetic, by promoting a diaphoresis, but by their being neutralized in the stomach, their action depends on the acid there.

Sudorifics have been also used, and are of two kinds, either stimulating or antispasmodic; the former always dangerous, and the latter always safe; of the first, pepper has been given, from three to twelve grains, in cold phlegmatic constitutions; theriaca has been tried, and Sydenham gave the *rad. serp. virg.* in wine, with the same view; but all these medicines are to be avoided as dangerous; Dover's powder, however, may be given with the best effects, and from the experience I have had of it, I recommend it as the best medicine for procuring diaphoresis.

Blood-letting, in vernal intermittents, having generally an inflammatory diathesis, is very necessary in the beginning, especially if the patient is of a plethoric habit, and in the vigour of life. The French recommend repeated bleedings, but this can be seldom necessary, and, in many cases, highly improper.

Blisters may be used to obviate local pain, but they are seldom necessary.

Cathartics are as necessary as vomits for cleansing the stomach and bowels, and carrying off the fordes, particularly in hot climates; strong ones

are, however, improper, as they may induce inflammation in the viscera. Obtuse pain in the back, borborygmi, flatulencies, and swelling of the belly, all indicate gentle laxatives; the laxatives I prefer are the neutral ones, as they are by far the least stimulating.

Bitters have been greatly commended, the chief of which are, the lesser centaury, chamomile flowers, and absinthium; they are all stimulants, and therefore increase the heat in fevers, though they may be joined to the bark judiciously enough; they have all the inconveniences of the bark, and not one virtue that it does not possess.

Tonics, from both the vegetable and mineral kingdom, are greatly recommended; the chief of the former is the Peruvian bark, and indeed it is the best antidote as yet known in intermittents. The good effects of the bark are not owing to its acting either as an astringent or stimulant, since astringents and stimulants more powerful than the bark have been tried without success; likewise combinations of them in all proportions with aromatics without effect.

With regard to its mode of introduction, it is now fully agreed, that it is more powerful when given in substance than when acted upon by any menstruum. The virtues of it seem to be in the resin, and this in decoction subsides; it is recommended by the latest writers to throw it in, in

great quantities, immediately before the paroxysm; and there can be no doubt, that the greater the quantity of bark that is used, the more efficacy may be expected; but as we run the risk of being frustrated in our expectations, by exciting sickness and vomiting, I would rather prefer Sydenham's method, altho' I think he may have been mistaken in his account of the death of his patients owing to the bark being thrown in in too great quantities. His method was, to begin the use of the bark immediately after the paroxysm, and continue to throw it in in moderate doses, till the commencement of the next, as half a dram or 40 grains, every hour or two.—To prevent a relapse after it is used, we ought to continue the use of it in small doses for some time.

It is probable that some of the barks of other countries may supply the place of the Peruvian bark, as the *salix frigidis*, &c. but this requires further experience to confirm the opinion.—The red bark, as it possesses the active qualities in a higher degree, and as upon experience I have found it more efficacious, I should upon the whole esteem as superior to the common bark.

The mineral tonics, as *sal. chalybeat.* *vitriol. alb.* and *sacchar. saturn.* have been used with advantage. The *corros. sublim.* has been said to cure obstinate intermittents, and altho' it has

been greatly commended, yet I have tried it in obstinate cases, where the bark had failed, and without any effect.

I have used *arsenic* once or twice, and I think it never can be used without danger: the method is, to dissolve one dram of arsenic and as much opium, in eight ounces of water, and give two or three drops: when it excites gripes, an oily emulsion is given to remove them.—Dr Muilman uses a much more elegant form of this medicine. Although these have been extolled greatly, and a number of cases recorded in which they proved successful, yet I have no experience of them, and I believe, that while we are acquainted with such a sure and safe remedy as the Peruvian bark, they will be superceded; however, they merit further trial.—The infallible ague drops are said to be very useful, which are a solution of copper, and have been found to contain arsenic in a dissolved state. They have been much celebrated in some counties in England; I have never tried them, nor do I think them either useful or safe.

To prevent a return, the patient should be removed to a dry climate, and enjoined the use of gentle exercise.

The diet, during the fits, should be simple, and only diluents used for quenching thirst, with

the gentle use of wine.—For a more full account of the diet proper in fever, I refer to my observations on diætetics.

In treating of the different genera of fever, I have avoided any formula of medicine, as these must be chiefly regulated by particular circumstances, and indeed it would have been an insult on the understanding of the most ordinary capacity and smallest experience. I would only observe, that medicines should be exhibited in the most simple form possible, and consist of as few ingredients as the nature of the medicine will permit; as by this means we can more readily ascertain the efficacy of any drug, and discover with more certainty the proper dose, and the mode of its operation.

CHAP. VI.—*Diætetics,*

Or the proper diet necessary to preserve health, and to remove disease when present.

SECT. I.—This part of medicine is too little attended to, though I am convinced equal, if not more, benefit may be derived from due attention to this branch, than from the most boasted of medicine; it will therefore be well worth the consideration of every one setting out in the practice of physic, to give it that attention which

the subject merits; on this account I purpose considering it with some care.

The name *nutrantia* may be used to distinguish all those substances, which are intended for supplying the waste of the body that constantly takes place from the perpetual motion of its parts, and by the expulsion of its fluids, in form of excretions.

All *nutrantia*, in their natural state, are mild, for they make no great impression on any part to which they are applied; the only exception to this is some kinds of fruit, such as the grape, pine-apple, &c. which are extremely luscious, but are far less nutrient than wheat or rice, &c. *Nutrantia* ought indeed to be mild, for they are intended to keep the body in the state in which it is.

The substances used in diet were at first few in number, but from the progress of luxury and increase of society, they are now so much increased, that it is scarce possible to point out the nature and properties of them all.

We shall first class the substances used in food, then point out their nutrient principle; next the effect of each of them on the system, in keeping it in the state in which it is, so as to direct us to which of them the preference should be given.

The substances used in food may be divided

into animal and vegetable food, and milk may be considered as half-way between these.

The nutrient principle of vegetables has been supposed to be in the sugar they contain; and very ingenious gentlemen assert, that we may calculate the quantity of nourishment in any substance from the quantity of sugar it contains; but those substances that are most generally used in diet, and what is most nourishing, have very little sugar, while figs, raisins, &c. which are not very nourishing, contain a great deal of it.—A gentleman who had great ardour for medical knowledge was so possessed with this doctrine, that he tried to support himself on a certain portion of honey every day, and after eight or ten days he became so pale and feeble, as to be scarce able to stand.—My own opinion is, that that principle which is the cause of nourishment, is in vegetable farina, which we see in its pure state only, in the form of starch, and in animals, a glue or jelly.

According to this rule *farinaceous* should be the most nutrient of the vegetable, and accordingly they are so; and the quantity of the nutrient quality of each of them is nearly in this order.

Before we proceed to consider these separately, and to make a choice from this variety, we may

enquire what kind of food is most proper for man.

Vegetables are either directly or indirectly the nourishment of all animals; the *granivorous*, *herbivorous*, form the greatest part of animals. Some, indeed, are *carnivorous*; but it may be observed, that the food of those animals that are preyed on by others, is always vegetable; for no carnivorous animal will eat of the same kind: thus a lion will not eat a bear, tyger, dog, &c. Fishes indeed prey on one another; but their food is partly animal and partly vegetable.—The reason why no carnivorous animal is devoured by another may be this; the vegetable may not be wholly digested by the animal that first feeds on it; the animal is therefore taken by another animal, which also is nourished by the vegetable; but the nutrient part of the vegetable is now partly exhausted, so as to be incapable of nourishing a third, and therefore carnivorous animals never eat each other.

It has been much disputed whether man is a *carnivorous* or *granivorous* animal; and this dispute has been handled by *divines*, as well as physicians. The descendants of Pythagoras and the eastern Bramins would taste no animal food, as they believed in the transmigration of souls, and consequently imagined they might be eating their father or mother. One set of physicians are of

opinion that man should eat only vegetables. First, Because his teeth are not constituted like those of carnivorous animals.—Second, Because men lived so long before the flood from their eating vegetables and burning their animals in sacrifice.—Others, however, observe very properly, that the eye-teeth of man are different from those of granivorous; and therefore, if he eats neither animal nor vegetable food, he must starve. And how can any one affirm, that the Antidiluvians eat only vegetables; or that their old age was owing to that circumstance.—Their sacrificing animals rather evinces that they used animal food, and highly esteemed it; for they would never offer up what they despised among themselves, to appease an offended deity. We would conclude therefore, from the human teeth being just in an intermediate state betwixt carnivorous and granivorous animals, that man is intended to partake of both.—The same inference may be drawn from the structure of the human intestines, being just half between the two extremes of the carnivorous and granivorous animals. The same may be observed from the effects of vegetable food alone, or from animal food alone, on the human constitution: We shall take for example, a man in a middle way of life, who has plenty of exercise, yet no hard labour;

if he lives on vegetables alone, he becomes thin and pale, is troubled with difficult digestion, gripes, flatulencies, and never attains perfect strength; nor does his skin become smooth and plump: If again he lives solely on animal food, he becomes fat, but has always a tendency to corruption, having blotches on his face and body, and often becoming like a leper; but if we mix the two, so as to let the vegetable prevail, he attains perfect health, strength, and beauty. We must therefore think that a mixture of animal and vegetable food, in which the latter is rather prevalent, is the most proper nourishment for mankind.

We shall now consider the particular effects of all these substances, and shew which of them is best calculated to nourish the body and keep it in a state of health.—They may be considered under these three general divisions,

- I. Vegetable,
- II. Mild. And
- III. Animal food.

S E C T. 2.—I. *Of Vegetables.*

Of these we will first consider the farinaceous feeds.

All the farinaceous seeds have the property in a greater or less degree of forming with water a tenacious paste; this is particularly the case if they are assisted by heat, and is owing, either to the prevalence of the farinaceous principle, or to a large quantity of *mucilage* mixt with it. Wheat forms it from the first of these causes, rice from the other; the farinaceous principle is not soluble in water, whereas *mucilage* is perfectly soluble with water. Thus starch mixed with a large quantity of water, upon standing, falls all to the bottom, but *mucilage* remains suspended: Besides these things, the farinaceous substances have, in their composition, a quantity of sweet matter, and of soluble vegetable fibres; this saccharine part is disposed to ferment and become sour, and hence all the farinaceous seeds are apt to become sour, the farina itself, as starch, will never become sour.

The farinaceous seeds, therefore, when taken into the stomach in their natural state, are apt to form on it a tough and almost indigestible mass, and their saccharine part occasions a fermentation, and forms an acid which destroys the nutrient principle, and by its stimulus often occasions a looseness, &c. so that the waste of the body is greater than the supply; hence it is necessary that these seeds undergo some preparation, which is to answer one of two purposes, 1st to diminish

their tenacity, &c. 2d, to diminish their disposition to fermentation; these inconveniencies are remedied by making them previously undergo a kind of fermentation, as by putting them into such a state that they are not disposed to run into it afterwards; thus, by mixing yeast with flour, we make it spongy and swell up, from the air generated in the fermentation being entangled with the particles of flour, and also deprive it of its tenacity; the same may be done by mixing with it a little flour, or other farinaceous substance, that has already been brought into a fermenting state by standing with water; as the fermentation thus excited may go on too far, it may be checked by a certain degree of heat, which likewise prevents the farinaceous substances from fermenting so readily on the stomach afterwards; we cannot, however, by any process, prevent the fermentation altogether from beginning again. If the farinaceous feeds are of such a kind that their farina is diluted with other substances, so that they do not form a tenacious paste with water, then it is not necessary to make them undergo a fermentation; of this kind are barley and oats, which require only to have heat applied to them to check their disposition to fermentation; in North Britain they get no other treatment; but, however, in some counties of England, where they are used as nourishment, they are made to

undergo a fermentation by leaven, or by mixing a little four meal with the fresh, before heated. The bread is thus made sourer, but is still disposed to ferment on the stomach.

Farinaceous seeds have sometimes their inconveniencies remedied by mixing them with other substances less disposed to become viscid; of this kind are the leguminous seeds, as pease, beans, kidney-beans, &c. Lastly we may observe, that the more pure the farinaceous seeds are, they are the less liable to inconveniences; hence sago and salep have them less than wheat, because they have less of those substances that dispose them to fermentation or viscosity; hence to the palate is so healthy a plant. The same observations are applicable to farinaceous roots, as parsnips, carrots, &c. for these are still more ascescent.

We shall now mention their particular advantages and disadvantages in nourishing the body. Farinaceous substances have little bad effect on the human body, and afford it much nourishment; their great disadvantage is, that they dissolve with difficulty in the animal fluids, as proved by experiments; they require, therefore, some assistance from external causes, such as a great quantity, or great activity, of gastric juice; this, acquired by much exercise, both propels the fluid from the stomach, and increases the secretion of the gastric juice; and accordingly the use of fa-

rinaceous substances as food has no inconveniences, when accompanied with enough of exercise; without exercise, however, it is digested with difficulty, and remains on the stomach till fermentation comes on, which occasions heart-burn; besides their difficulty of digestion is increased by their own mild nature, the gastric juice being secreted in smaller quantities than usual; from living solely on them, the body soon becomes capable of great muscular exertions, yet it is not fat, and its sensibility is diminished to a degree rather below the standard sensibility of health; in consequence of this diminution of sensibility, such as live on the same are less subject to diseases occasioned by irritable causes; hence the prophylactic against inflammatory diseases, when common, is to live on farinaceous substances; this is agreeable to the experience of the best practitioners, who found that these substances are the best food for persons under such diseases; and also to the observation of Hippocrates, who notices that such as are subject to acidities in the stomach, are seldom affected with pleurisies; it follows from this that sedentary people ought not to live on farinaceous substances, else they will be troubled with heart-burn, flatulences, queen-stools, and diarrhoea; and tho' these inconveniences are not felt by such as take much exercise, and in consequence of using this food they are less subject to inflam-

matory diseases, yet they become subject to languor, and that set of diseases called *nervous*; accordingly, in those parts of the country where these substances are most used, the hysteria, hypochondria, and other diseases of that kind, are very common, and chiefly among such as use little exercise, as women, taylor, &c.

We will conclude with observing, that there may be differences in the constitutions of different people that will thwart the truth of these remarks; some may have strong stomachs, and may naturally secrete so great a quantity of gastric juice, that even, tho' sedentary, they may agree best with farinaceous food; if again the constitution is very irritable, tho' they should live on these substances, they may still be subject to those diseases; and this may be the case even altho' the habit is not disposed to inflammation, if they are exposed to violent exercise, or alternate changes of heat and cold.

Olera, or *Pot-herbs*, differ from the farinaceous vegetables chiefly from their containing a larger quantity of that substance, which is mixed with the farina, and soluble in water; they are very numerous, and as they are all fresh, they contain a larger quantity of water, at least three-fourths of their bulk; even of this part that remains there is a portion that is not farinaceous, but which

very readily ferments, and during this process, separates a great quantity of air; hence they are much weaker nourishment than the farinaceous vegetables, even independent of the water they contain, and they are very apt to occasion flatulence: Of this kind are the different species of cabbage, such as broccoli, colewort, cauliflower, &c. The olera, by separating a quantity of fixed air during the fermentation, has the remarkable property of resisting attempts to corruption in the constitution, and of bringing the body into a state opposite to putrefaction; they are of great use, therefore, as prophylactics against putrid diseases; in Cook's Voyages, we may see they are the best preservatives from the scurvy, as well as the best cure; they have the same disposition when joined with other substances, and hence they are the best addition to animal food, and the best restoratives after too much of it has been used; they differ among each other chiefly in the quantity of air they separate, and therefore some of them are more powerful antiseptics than others.

As they are flatulent and afford little nourishment of themselves, they are improper in all languid diseases; we should accustom ourselves to them on account of their antiseptic quality. The farinaceous plants and olera run insensibly into each other, so that we cannot tell where the one ends and the other begins; thus the turnip re-

resembles the cabbage greatly, both in containing a great deal of water, and being disposed to ferment readily; hence the farinaceous roots, which contain much farina mixed with a saccharine and other parts, so that they are disposed to ferment and generate fixed air, possess, in an intermediate degree, the nourishing quality of the farinaceous seeds, and antiseptic quality of the olera; the olera, therefore, contain very little nourishment, but we may add, that they contain more than the *acrid* plants, such as the leek, onion, and garlic, which seem only to promote digestion by their stimulus.

Nuts.—There are other substances totally different, with which the farinaceous principle is sometimes mixed, as in the kernels of nuts, where it is joined with oil; of this kind are *hazel nuts*, *chestnuts*, &c. the oil in the whole of them is with difficulty acted on by the fluids of the stomach, and thereby defends the farinaceous part from the action of the gastric juice. The epidermis of all seeds is incapable of being acted on by the stomach, and hence, if swallowed entire, they drop off in the same state; this is also the case with other animals, and hence the propriety of mixing some hard substances, as beans with the oats given to horses to make them break down the oats, and so fit them for being acted upon by the digestive

organs; even after they are broke down, the gastric juice only gets acted on some parts of them that are uncovered by the epidermis; we may therefore safely say, that nuts have little nourishment, and are difficult of *digestion*; and hence, in a state of health, are fit only for gratifying the palate; in some diseases, however, they may be of considerable service: We may observe that the above remarks are not applicable if they are ground down into powder, as in emulsions, chocolate, &c.

Fruits—are the only substances of the vegetable kingdom that now remain to be considered. All recent fruits contain a large proportion of water, tho' not so much as the olera. In the common fruits, as the apple, cherry, plumb, &c. there is, I suppose, one half their weight of water, or perhaps a little more.—We cannot often get more juice from them, for we will get three-fourths of juice from the orange, &c. but the parts soluble in water are carried away with the water. This juice, in most cases, has all the nutritive qualities of fruit; it contains, first, a matter that appears farinaceous, and, on standing, subsides; but this is not wholly farina, but contains a quantity of vessels: second, it contains some *mucilage*: and, third, an acid, mixed with a sweet matter, in different proportions in different parts.—Hence, these fruits are called *acids*, *dulces*.

The farina that remains after the other parts are separated from it, is only in a small quantity, and therefore, these fruits are not nourishing.— A person might no doubt live on these for some time, yet I believe he would soon become weak, and enjoy a bad state of health : Besides, fruits more than any other food, are disposed to ferment and become sour ; and hence always give rise to flatulence and gripes, and if they have even passed into the constitution without these effects from the acid they contain, they diminish the natural sensibility of the body. They are, however, in my opinion, very powerful antiseptics, even more so than olera. An opposite quality is generally ascribed to them, particularly they are said to be the cause of the *bloody-flux*, which all allow to be a putrid disease ; we would refer it, however, to experiments, and these seem to be on our side. The dysentery appears generally in June, tho' sometimes as early as May ; it grows worse in July and August, and begins to stop in October ; in May, when it begins to appear, there is no fruit in Europe, except strawberries, which are too scarce to occasion it ; but in October, when it begins to stop, fruit is in great plenty, every one eating grapes in France, Italy, &c. and apples, plumbs, &c. in Britain ; which would rather shew, that fruit is not the cause of this complaint. If dysentery is a putrid

disease, fruit must prevent it, by bringing the body into a state opposite to that of putridity; and I am of opinion, that such as live most on fruit, and vegetables, which are a-kin to them, are least subject to dysentery. I speak not, however, of the effects of fruit on the body when in a state of disease, for there are many diseases in which they would rather be injurious; thus in dysentery, which I suppose proceeds from an increased circulation in the small blood-vessels of the intestines, they would be unsafe (after it has come on) on account of the stimulus of their acid, and their disposition to fermentation; they may be rendered much milder, however, by boiling or roasting them; tho' in a state of health, they require these preparations less than either the farinaceous seeds or the olera.

Condimenta--are formed by preserving some of these vegetables or fruits with salt, vinegar, pepper, sugar, &c. all their qualities depend chiefly on those substances with which they are mixed; these seem to be nothing more than a stimulus for exciting an appetite, when there is naturally no appetite, and hence they are so much regarded by the intemperate; perhaps these formed with salt, vinegar, sugar, &c. may not be very injurious, as a little salt may promote digestion; a little vinegar may prevent a tendency to putrefaction; and a little sugar may prevent fer-

mentation. But those made of pepper, ginger, &c. may injure the stomach, and always in time lay the foundation of gouty complaints.

I might have mentioned that the gourd fruits contain even more water than the olera.—Of this species the pippin and melon are used in food; the last of which contains less water than the former, and resembles the cabbage and turnip, or is rather between these. Melons are supposed to occasion dysentery, and are therefore forbid to be sold in France as soon as they become plentiful; but in my opinion they are blamed unjustly—they contain no acid, nor does any of the cucurbitacæ contain it; nay, I have no doubt, but that pumpkins and melons are antiseptic, as well as other fresh vegetables.

I have thus confined myself to a few of the vegetables in common use in this island, as it would extend beyond the limits I have prescribed myself to consider every vegetable used in diet.

S E C T. 3.—II. *Of Milk.*

This is a substance about half-way between vegetables and animals, possessing the properties of both; it is part of the animal digested, and carried into the circulation, and at length secreted by the glands of the breast; so that it is the quintessence of the food of the animal, and has

lost a little of its vegetable nature, and is in some measure *animalized*. As it is prepared for all animals in their infant state, when the organs of digestion are weakest, so we may consider it as that substance which requires to have the least change produced on it to fit it for nourishing the animal. Milk is white, and appears to be homogeneous; the white colour is owing to the *oily parts* it contains, which being imperfectly combined with the rest of the ingredients, form an emulsion or chemical diffusion.

Accordingly, on standing, the oily parts rise to the surface, forming what is called cream; in the cream there is a portion of water remaining, which may be detached from it, and then the pure oily parts form butter; this is obtained by letting the cream stand till it become sour, when the other parts are disposed to separate, and then by agitation, the oily parts are made to unite together. The oily part, or butter, is an intermediate substance between the fat of an animal and the oil of vegetables; the oils of vegetables are insipid, and have no smell when fresh, but on keeping them long they become rancid, and then they are very acrimonious, and would injure the constitution. Butter is solid in an ordinary heat, but not hard, and by a small increase of heat, it becomes fluid, so as to resemble the vegetable oils. This disposition of the fat matter to corrupt, is

owing to other parts of the milk that are mixed with it, and is checked by the addition of salt; the consistence of the oily matter of milk is owing to an acid, for acid gives tenacity to all oils, and there is evidently a great proportion of it in butter; what remains after the fat matter is separated is white, from a small part of the fat matter being left in it. Milk, on standing a considerable time, divides into *coagulum* and *serum*, or curds and whey; this is sometimes done after the oily matter is separated from it, and sometimes before that separation. In some places this spontaneous decomposition is allowed to take place, but a more elegant way is, by mixing with the milk some substance that will decompose it. All acids, spirits, wine, and even aromatic substances, have this effect; but the most powerful liquor is the gastric juice of all animals, and particularly of cows. The gastric juice of young animals is more powerful than that of old animals; and hence the stomach of a calf is generally used for this purpose, and is best when fresh, nevertheless it has the same property when preserved with salt; hence a small quantity of an infusion of this is most commonly used, which is sufficiently effectual, especially if assisted with a gentle heat.

This coagulation or caseous matter, by pressure, and the addition of a little salt to check its dis-

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position to corruption, forms what is called cheese. The serum is chiefly water, but contains also a saccharine part, which may also be separated. This *saccharum lactis* is separated by the Swiss and French in large quantities, and tho' not yet in use in this country, it might, I think, be of considerable service in medicine. The *saccharum lactis* is disposed to sour, and hence milk ferments, and spontaneously coagulates; besides these oily and cascous matters, serum and *saccharum lactis*, we may add, that milk contains a small quantity of sea-salt, which, however, is in different quantities, according to the pasture, and other circumstances, and is, sometimes, altogether absent: The oily part of milk, like the oils of animals, affords no nourishment, but from its mixture with the other parts.—The same observation is applicable to serum; the cascous parts contain the nourishment, and corresponds to the *farina* of vegetables, and the *gluten* of animals, amongst which there is evidently a gradation.—The cascous matter has less solubility in water than the gluten, but is more soluble than the *farina*, and has more disposition to corrupt than the *farina*, and less than the gluten.

As cheese contains all the parts of milk, it may corrupt; and hence very old cheese has its tenacity diminished, and is therefore easier digested,

tho', in my opinion, it is less nutritive. It is generally believed that old cheese has great efficacy after a surfeit of fruit, and we are told that persons have died of this complaint, and that the surgeons, on opening the dead bodies, sprinkled a little old cheese on the contents of the stomach, and they soon disappeared. I, for my part, can give no credit to such ridiculous stories.—I am of opinion, that the only good effect they can produce, is, to promote digestion by its stimulus; hence it is always used as the last article at meals.

Milk, considered as food, is easily digested in its natural state, and passes into the lacteals without almost any change. The quantity necessary for supporting the body, however, is great, and is difficult of digestion in such as have been accustomed to a more stimulating diet; and when it remains long on the stomach, is apt to become sour; hence it occasions flatulences and gripes.

This is not the case with children, because even this mild substance is sufficiently stimulating to their stomachs; but it sometimes happens in them also, occasioning heart-burn, and even at times fever, which is distinguished from others by looseness and green stools, which are always the effects of an acid being mixed with the bile. Hence milk is best for weak stomachs, as in he-

patic and phthifical complaints; and as it requires little gastric juice, it is proper for part of the food of those who use little exercise. Some think milk improper for themselves, because they see it coagulated when thrown up; but it must always coagulate, if there is a particle of gastric juice in the stomach.

Its disposition to ferment and remain on the stomach may be checked by the addition of some stimulating substance, as a little cinnamon, nutmeg, sugar, or salt.—We will now apply these observations to explain some differences in the nature and properties of the milk of different animals.

All kinds of milk agree in their complexion, but they have their ingredients in different proportions; cows milk has a much smaller proportion of sweet matter than human milk, or ass's, or mare's milk; but its proportion of cascos matter is greater; the quantity of solid matter contained in milk is ascertained by evaporating the milk and weighing the residuum; in most of the kinds of milk, twelve ounces, after the water is evaporated, leaves eight drams of solid matter; in cow's milk, the solid quantity is thirteen drams; in goat's milk, twelve drams; in human, and also in ass's milk, twelve drams. It is generally thought, the milk that contains the greatest proportion of saccharine matter is the most nou-

rishing; and, therefore, in hectic and phthical ailments, it is usual to recommend the use of human milk, or afs's milk, which is reckoned nearest to human; and if these cannot be got, to use mare's milk; but I am disposed to think that cow's and goat's milk, which contain the greatest quantity of solid matter, are most nourishing; this is agreeable to my former remarks, for cow's milk will yield ten drams of curds or caseous matter from twelve ounces of milk, which is more by a great deal than afs's milk will yield. Human or afs's milk may, in some cases, be most proper; for the caseous matter is easiest digested when mixed with a great quantity of other ingredients; hence these are best in phthical cases, in which there is a great degree of weakness; water applied to coagulated milk dissolves soonest those kinds of milk which are least nutritive; and from analogy we must think that such as have least caseous matter will be easiest digested, when coagulated the same way in the stomach. Water dissolves different quantities of residuum got by the evaporation of the different kinds of milk; of the residuum of cow's or goat's milk, it will not dissolve above one thirteenth part, therefore is not always most proper in a state of disease, tho' it is always preferable in a healthy state.— We may observe that there is a greater resemblance betwixt human milk and that of afs's, and

next between cow's and goat's milk, so that these are scarcely distinguishable by experiments; the one or other is to be chosen, according as we want a greater or less proportion of the ingredients; if we wish to throw in a quantity of the oily parts, to relax the parts with which they may come in contact, or to prevent the vessels from being irritated by the acrimony of the fluids, then ass's milk will be proper; milk may also sometimes produce more effects from containing much saccharine matter, and such as have the greatest quantity of this matter are easiest dissolved with water; and so from analogy in the stomach, ass's milk, or human milk, will be found to answer best.

Besides, particular parts of the milk may be employed for other purposes, as whey for a diluent; this consists chiefly of water, and is very agreeable, and is also often capable of producing considerable effects on the constitution; it may be formed by mixing the *saccharum lactis* with water; it has, with justice, as I think, got a great character from the Swiss, who prepare the saccharum in great quantities as an excellent restorative, particularly in phthical ailments.

S E C T. 4.—III. *Of Animal Food.*

In considering this part of diætetics, we may

divide animals into *quadrapeds*, *birds*, and *fishes*; the nutrient principle of these, I have already mentioned, is in their gluten, of which fishes contain the greatest quantity; quadrupeds next, and lastly fowls. The ruminating animals afford the best nourishment for man; those in common use are, the *ox*, the *sheep*, the *goat*, the *hart*, and the *bare*; to which we have, in this island, added the *sow*, which possesses properties very different from the others; other animals are, however, used in other countries, which we never thought of here; thus some eat asses; the Tartars eat horses; the inhabitants of Otaheite, &c. eat dogs; and it is common enough in France to eat frogs; and we have heard of many who have lived some time on rats and mice: We are accustomed to think of eating these with horror; but I dare say we might soon have a relish for them if we once tasted them. Ruminating animals are most acceptable to the human stomach from their possessing more of the vegetable nature, I suppose, for they all live on vegetables; and, tho' not the most nourishing, they are easier digested, and less disposed to corruption, than carnivorous animals; whether the flesh of horses and asses may be as agreeable, and possess as much of the vegetable (for these also live on vegetables) as cows, &c. I cannot determine; but, for my own part, I can see no reason why they may not be very good.

The flesh of animals differs considerably according to their age, and the younger the animal is, the more does it approach to the nature of vegetables; veal broth very easily fours, which shews its vegetable nature; but beef broth will never four, if it have no vegetables in its composition; this difference is probably owing to the weak digestion of young animals, by which they cannot animalize their food so completely as they do afterwards; age, therefore, must be taken into the account in considering the properties of different animals—there is evidently a gradation in the different *classes*. Milk possesses most of the vegetable nature, then young birds, as the chicken, duckling, gosling, &c. next young quadrupeds, as lamb and veal; old fowls follow next, then quadrupeds of six or seven years of age, and lastly fishes. Their order is pointed out by experiments; vegetables, by boiling them in water, and seeing when they become sour. There is as great a difference, however, among the individuals of the same class, as amongst the different kinds of milk, and chiefly amongst the fowls; for water fowls are so different from land ones, that they should be ranked even amongst the old quadrupeds; the nourishment of all these lies in the glutinous part; and accordingly, after this is extracted from any of them, in the form of portable soup, the animal substance is wholly destitute of nourishment.

Animal food is very difficult of digestion, without previously undergoing some preparations, on account of the great cohesion of its parts, by which it is incapable of being penetrated by the gastric juice. I believe, however, that raw meat would be easy enough of digestion, if cut into small enough pieces.—It is generally supposed, that the nearer it approaches to the raw state, it is the easier digested; but this idea is certainly ill-founded, both on account of the greater cohesion of the fibres of raw meat, and because in this state it always contains some blood, which is perfectly indigestible; for when drank, as it has sometimes been, or extravasated into the stomach, the only way of getting rid of it is by vomiting. Some heat is therefore necessary for preparing animal food, and of consequence, it is either boiled or roasted; there is some difference from these preparations, thus, the burnt oil may hurt weak stomachs; in this case boiled meat will be most proper.

By too much heat, however, we undo what was intended by it; if we scorch it in roasting, it is converted into a kind of charcoal, which is indigestible: It is also made difficult of digestion by exposing it too long to heat, tho' this heat be not too intense, as by boiling it too long in water; for the water extracts all the soluble parts,

and what remains is, in chemical language, only the residuum of the meat; all the nutritive qualities, however, will be found in the broth, which is very easily digested, as it is already dissolved in the water, and its solution in other cases must be made in the stomach. Differences also arise according as we use animal food dissolved in water, with or without vegetables; the former being preferable, and forming a nutrient and wholesome food, and so mild as not to hurt the stomach by its stimulus.—Boiled meat is more digestible than roasted, because it is fully saturated with water, therefore easily penetrated with the gastric juice; but the effect of roasting is to give it a stimulus, which gradually diminishes the sensibility of the stomach; accordingly such as use roasted meat become soon subject to stomach complaints, and gradually lose the power of digesting boiled meat, and even at last roasted meat, and they are obliged to have recourse to pickles and a variety of stimulus to promote digestion. Animal food may be also prepared by preventing the more volatile parts from escaping, by surrounding it with a farinaceous crust; but meat prepared in this manner is still of more difficult digestion, and more stimulating. Animal food may also be fitted with salt, pepper, or vinegar, and have its juices evaporated by hanging it up; it may also be exposed to the fumes of aromatic substances.

--The stimulus which it thus produces, prevents the difficulty of digestion, which its dryness would otherwise occasion; but this is done at the expence of the stomach. This kind of food may be proper when the stomach is so weak as to render these *stimuli* necessary; hysterical and hypochondriacal people are generally from their constitution disposed to it, and digest it easier than other food; yet it may relieve them, and I believe it will in time hurt them, and that they will never get free from their complaints, if they continue using it. Spirits also give them temporary relief, but prolong their complaints.

Advantages and disadvantages of animal food.

A man in health easily digests animal food, and his body acquires from it great strength, smoothness, and elegance of figure; after using it for some time, however, marks of corruption come on, and actual putrid diseases begin to make their appearance. Scurvy always arises from living too much on animal food, even tho' the food be pure, for I have seen it occasioned by living on fresh meat; this food also brings the body into an irritable state, so that tho' it be free from languid diseases, it is very subject to those that are inflammatory. Such animal food as is most re-

mote from the nature of vegetable, brings on these inconveniencies soonest; consequently, fishes are the most improper for constituting the whole of our diet, tho' they are at the same time the most nourishing; and I believe that this effect of animal food is so great, that it would put a period to life independent of disease, which vegetable food would never do. A mixture of vegetable food is therefore necessary to check this disposition to corruption, and it should be in proportion of three if not four to animal food. Vegetable mixed with animal food in the body, by fouring, effectually prevent putrescency; and the same, from analogy, will happen in the stomach. The good effects of mixing vegetable with animal food, are proved by experiments on the human body, which are more conclusive than those made on other animals, and inferring the same from analogy of the human; for every animal has food of its own, and juices calculated for digesting that kind of food.

Thus dogs digest bones easier than farinaceous substances; but we are not to infer the same of the human stomach; the best antiseptic, and therefore, the most proper mixture with animal food, is the olera; next fruits, then farinaceous vegetables.

SECT. V.—*Of Drink.*

We have now only to add some observations on the different kinds of *drinks*, and to point out the choice that is to be made among them, so as to keep the body in health.

It may be asserted that the proper diluent of our food is water; this possesses all the properties requisite in a diluent, being easily miscible with the food, and particularly with the nourishing part of it, and so mild as not to alter or impair the functions of the stomach; The water ought to be as pure as possible, for the greater proportion it has of other ingredients, the more its effects are diminished; it has seldom, however, any qualities that would injure the constitution without this being discoverable by the taste; the most hurtful mixture is with putrid vegetables or animal substances, and it should then be boiled and kept for some days; boiling it, however, has the inconvenience of depriving it of some of its fixed air, for the more it contains of fixed air, it will promote digestion the more; the quantity of fixed air it contains is known by its sparkling in the glass, and by the number of bubbles that rise to the top on heating it to the temperature of the human body; it contains also saline matter, but this occasions very little inconvenience. Pyrmont, and

the mineral waters employed in medicine, and sold as high as some wines, owe their good qualities to this same air; but they contain a greater quantity of it than ordinary water; these may be used with advantage in cases where the stomach is weak, by their promoting digestion. We substitute for water, liquors produced from the fermentation of grain, or the grape; the former kind contains little spirit, but if not too fresh, nor become dead by exposure to the air, it contains a great quantity of fixed air, and thereby removes flatulence, promotes digestion, and keeps the body in a state of health. It is a common opinion, that this aerial fluid will increase flatulence; but I never saw it used without removing that flatulence which we are apt to think it would aggravate.

In some cases, still others may be proper, and chiefly antiseptics, and such as prevent fermentation from coming on in the stomach; next to those already mentioned, *wine* is therefore best, which is both a stimulant and antiseptic; the wines in common use are red and white, and it is thought (but, I think, without foundation) that the red is more astringent, and gives the best tone to the stomach and intestines. *Ardent spirits* mixed with water, from their great stimulus and antiseptic qualities, may, in some cases, be preferable to wine, especially as they undergo a

change in the stomach; they are very proper in warm climates, where people are exposed to putrid infection, both to furnish matter for perspiration and to check corruption. In the West-Indies, a draught of cold water might suddenly kill a man who was very warm, so that the water must either be heated, or have some spirits mixed with it: In cold climates, something of the same kind is necessary, for great cold diminishes the natural functions, and so may affect the secretions of the fluids in the stomach; besides, in these cold climes, vegetables are very scarce in winter, so that they are obliged to live more on animal food; hence the scurvy is the most frequent at this season, and spirits must be used in place of vegetables. In Norway, Prussia, and some parts of Sweden, there are few or no vegetables, and the inhabitants live chiefly on dried salted fish; and hence the putrid diseases rage there, notwithstanding the intense coldness of the climate; in such cases, spirits may be joined with the water, but should only be in a small proportion, and never so great as to intoxicate; a small quantity of these spirits used alone, may be of some service at a rare time, but their frequent use hurts the stomach, and lays the foundation for palsies, epilepsies, and other diseases.

S E C T. VI.—*Regimen proper in disease.*

Having considered the subject of nutrition, or *diata*, at some length, we will now proceed to what is called *diata ægroti*, or regimen proper in disease.

Under this head are considered the effects of substances used in diet upon the body in a state of disease, which constitutes the *prophylaxis nosologica*.—Here I shall point out,

I. The nature of the food proper to be used in different diseases; and

II. What food is best as a restorative after the disease is removed.

1st, We have already discovered that a mixture of animal and vegetable food, in which the latter is prevalent, is most proper in a state of health; different treatment is necessary in a state of disease; but by knowing the general properties of the different kinds of food, and what is proper in health, we shall be enabled to see what alterations will be necessary in particular diseases. It may be asserted, that an attention to regimen has more effects than medicine in removing diseases; or, if this assertion be too strong, we may, at least, say

that more can be done with regimen without medicines, than by medicines independent of regimen; the use of medicines, without attention to the patient's diet, is of no service, and very often prejudicial. We must consider here the changes produced on the body by diseases, and

I. Their effects on the organs of digestion.

II. Their effects on the organs of circulation.

The first are chiefly concerned in digestion, and on them the food is disposed to produce immediate effects. The stomach is itself extremely sensible; the nerves communicate with every part of the body, so that it is never diseased without some other part being affected from it by sympathy, if I may use the expression; when a person is diseased, therefore, we should attend to the state of the stomach, whether it is more or less insensible than usual; whether it digests as well, and secretes its juices properly, and these are known by the patient's feelings; if the stomach is possessed of great sensibility, stimulating food is to be avoided; but if its sensibility is diminished below the standard sensibility of health, stimulating medicines will be necessary to bring it into its natural state; at the same time this is liable to some latitude; the food proper for a patient

brought up in luxury, will be improper for one who lived solely on vegetables; for when both their stomachs are sensible, the former will bear more than the other. *Universally*, when sickness and vomiting indicate a great degree of sensibility, the mildest food, and of consequence vegetables, is the best; but, on the contrary, if digestion is performed with difficulty, and the secretion of the fluids of the stomach is diminished, then much animal food, of the most stimulating kind, and combined with stimulating substances, will be proper. The appetite of persons under disease, is, in general, I think, an indication of the food which nature points out as proper to be used, and particularly of the food that is to be avoided; this, however, is not the common opinion, at least it is generally supposed that people of our profession take care to keep from the patient what he wants most. Only observe a man in a fever, and every symptom seems to be an effort of nature to keep off irritation from external causes; his eyes are heavy, his ears dull, and his mouth covered with a crust, to keep out the impressions of objects on those senses; he has an utter aversion likewise to animal food, and can eat only fruit or vegetables, and drink some diluent, or water-gruel with a little souring; here it would be madness to force him to eat animal food, or to keep very warm, when he is always throwing off

the cloaths. Sydenham first thought of humouring nature in these things, and with great success. The only thing still in use of the old practice is, to try to cleanse the mouth from the crust upon it by currant-jelly, &c. but we have nothing to do with this crust; nature brought it there, and will remove it as soon as it is necessary, and accordingly physicians consider the crust beginning to come off, as the best mark that the fever is abating; we should, therefore, take hints from these appetites, and only moderate them when they become extravagant; thus, tho' we allow our patient to be as cool in bed as he pleases, we should not allow him to run out in the open air. Their appetites are so strong that they sometimes thwart our strictest injunctions. I saw a case, and I might mention twenty more if necessary, when a person at the end of a fever, in which he had been confined to vegetables, rose and got hold of two ducks, which he eat for supper, and after sleeping well, was perfectly well next day, tho' all expected to find him dead; and we are now also ourselves beginning to think wine in a fever not so bad as it is thought; tho' we would not, therefore, indulge any of their foolish appetites, I would always thwart them, as they at least point out what is to be avoided.

II. We may be directed in the choice of proper food, by attending to the organs of circulation, or, in other words, to the state of the pulse. If the pulse is quicker, stronger, and fuller than ordinary, and circulation greater, we must certainly avoid animal food, and all stimulating substances that may increase the force of the circulation; if again the organs of circulation have too feeble an action, known by the slowness and weakness of the pulse, as the circulation is not alone affected, but in consequence of it, all the secretions; then we must use stimulating food to irritate the stomach, and at least to excite more frequent contractions of the heart and arteries, by the chyle mixing with the blood. At the same time in prescribing food for every disease, he must give what will produce as few other effects besides what we intended as possible; thus if we want to increase the circulation, we must take care that it does not become putrid, &c.

If these principles are understood, it may be easily known how to apply them in particular cases; yet I shall give an instance or two of it, as it will give me an opportunity of making some observations, which I think may be useful, and which could not be conveniently brought under the above general remarks.

I. When the body has a tendency to inflammation, or is already in that state.—Inflamma-

tion is an increased action of the heart and arteries, or in the arteries of a particular part, without the heart, by which the circulation is increased; if the inflammation is universal, there is a heat over the whole system, and a redness and fullness, particularly in the face; if topical, the heat, swelling, and redness, are confined to the part affected.

In every inflammation, the sensibility rises above the standard sensibility of health; if the inflammation is general, the sensibility of the whole system is increased; if topical, that of the part inflamed: Every attempt, therefore, to remedy inflammation, must tend to diminish this sensibility.

With this view we must lessen the force of the circulation by bleeding, clear the intestines by cooling purgatives, and shut up every avenue to external *stimuli*.

Thus, in a pleurisy or inflammation of the membrane that lines the thorax, the inflammation is topical, but affects the whole constitution, thereby occasioning a fever; to bring the pleura then to its natural state, we take blood from the arm in great quantities, or from the part affected, by leeches or cupping, and at the same time blisters, &c. but above all it is necessary that the diet be solely vegetable.—The patient himself has the greatest loathing to animal food, and this cir-

cumstance, if there was no other, should make us abstain from it.—The stomach is in so irritable a state, that only such vegetable food as is least disposed to ferment will be proper, particularly as the great heat of the system would make it become four more readily than usual.

The *olera* therefore are improper, and the farinaceous feeds are particularly indicated, and may be best exhibited in the form of water-gruel, barley-water, toast and water, or panada, which is bread boiled in water and a little sugar.—A small quantity should be given only at a time, but frequently repeated. There should always be a greater proportion of water, which is indeed indicated by nature, for the patient has always an unquenchable thirst. Fruits may be joined with the farinacea, but are too flatulent, and possess too little nourishment to be given by themselves; the use of wine or spirits in any quantity, even the smallest, is perfectly inadmissible.

The same practice is equally proper in every case of greater inflammation, whether the inflammation be general or topical, and from that affecting the constitution; such inflammations ought to be particularly attended to, as they terminate in a few days. Inflammatory are then called *acute*, and in these the physician may be of more service than in any other complaints, and chiefly by a proper attention to diet; in trifling

inflammations particular care must be had to the diet, for here the patient has no loathing of animal food, which, if used, will certainly aggravate the complaint.

II. We will next consider what regimen is proper when the circulation is less violent, and slower than in the natural state of the body: This constitutes, as it were, two sets of diseases, the *nervous* and *putrid*. These require a different treatment from inflammatory diseases, and we are not here so well directed by nature, either in what we are to choose, or what we are to avoid.—The most remarkable of the nervous diseases is the nervous fever: Here the heat and redness attending inflammatory fevers are wanting, and the action of the heart and arteries is less than in a state of health, and we are apprehensive that the *vis vitæ* will be lost, and the patient will fall into *deliquium animi*, and be carried off in one of them. At the same time the nervous system is much affected, or at least the head, and hence *coma* and *coma vigil* are frequent in these fevers, tho' the muscles are almost in a state of inaction; it is therefore justly concluded, that animal food is improper in all nervous cases attended with fever, not merely because they injure the stomach, but because they will do harm after they are taken into the circulation.

The diet most proper here, therefore, is wine mixed with the farinaceous substances, which are at the same time nourishing and free from stimulus; wine irritates the stomach, and thereby promotes digestion, diminishes the quickness of the pulse, and gives it strength. The quantity of wine that may be given is very considerable; and it is singular that here the same quantity will not produce intoxication which would produce this at other times; a small quantity, however, should be given at a time, as a glass or two every hour, by which its effects may be better kept up; but it may be mentioned that, previous to the exhibition of it, the intestines must be emptied by a mild injection or laxative, that there may be no stimulus but what arises from the wine. The stomach I have supposed already emptied, for an emetic is generally exhibited first in these complaints: This practice of giving wine in nervous fevers was first introduced within these twenty years, and owed its origin to the appetite of a person under a nervous fever, leading him instinctively to drink a great quantity of wine.

In nervous diseases, *not attended with fever*, animal food may be used with safety; hysterical and hypochondriacal persons are accordingly very fond of this food, and in its most stimulating form of *hams*; my own opinion, however, is, that these will at least bring on more obstinate diseases than

they were intended to palliate; and that a vegetable diet, strictly adhered to, will most effectually remove their complaints.—*Heart-burns, acidities, and indigestion* will at first be the consequence of this diet; but these may be remedied by making the patient take a long journey, or in any other way by taking more exercise than usual. By this treatment I have freed terrible hypochondriac people, who had been often on the point of killing themselves, from the whole of their complaints; yet I am sensible that this mode of treatment will never come into general practice, because it requires more time and assiduity to bring the patient into this way of life than almost any one would bestow.

In putrid fever, (which is only a higher degree of the nervous fever) besides the common symptoms of the nervous fever, there are more evident marks of putrefaction in the constitution: These are, foetid breath, foetid exertions, and marbling blotches, or petuhia, or other eruptions that arise from the dissolved state of the blood; these fevers generally terminate in a few days, and and must therefore have great attention paid to them.

Animal food in such cases is the most exceptionable, as it would increase that putrefaction which already has begun; on the contrary, the

food should be calculated to correct this putrefaction, to put a stop to its violence, and prevent its bad effects. Fruits are particularly indicated, which, from their acid quality, are the best antiseptics; lemons, oranges, apples, &c. ought therefore to be freely used, and if made use of by the physician, will prevent his being infected; fruits are always acceptable to the patients, as they quench their thirst, and they ought also to be allowed to drink as much as they please; as this food however is not very nourishing, the farinacea may be joined with them. There may be cases where fruit may be improper, as dysentery, where there is at least a tendency to putrefaction; here, on account of the tender state of the intestines, bark or something of the kind may be preferable to fruit. The olera become flatulent, yet I have found them of service in some cases, tho' I cannot recommend them without more experience of their utility.

But in putrid diseases that are *free from fever*, the olera are most proper; whether this may be owing to their aerial matter, not being detached in such quantities as by the heat of fever, I know not; but certain it is, that fresh vegetables are an effectual remedy for these disorders: The scurvy is cured by them and no other.—In Anson's Voyage we see instances of many just expiring with the scurvy, who, on being landed, and eat-

ing raw grafs, grew quite well. Fresh vegetables, even preferved in falt, retain this property, and accordingly there will probably be no fcorbutic taints where the *four crout* of the Germans is ufed in fufficient quantity; at the fame time the ufe of the farinacea will be neceffary, as the olera have very little nourifhment.

We will now confider the regimen proper in difeafes attended with great debility, and when the nervous fyftem is very little affected; the debility here arifes from conftant evacuations, and we cannot ufe food fufficiently nourifhing on account of the difficulty of digeftion; of this kind is the *phthifis pulmonalis*, in which one would imagine the fluids are in a ftate of acrimony, from the conftant fwets attending this difeafe; milk is here particularly indicated, and afs's milk is generally preferred, on account of its being eafy digefted, and the fmall proportion of cafeous matter it contains; but tho' it may be the beft in the laft ftage of a confumption, I believe that cow's milk may be of more fervice in the beginning; goat's whey and goat's milk are alfo highly recommended, and the firft may be ufed with great advantage, tho' it is not to be confidered as food; goat's milk is preferred to cow's in confumptive complaints, becaufe the goats feed on a number of medicinal herbs, which cows and other

animals refuse; the cow and goat's milk differ considerably in taste; from analyzing them they appear to differ little from each other in the proportion of caseous matter, being as 26 to 25, and the other parts the same in all respects, yet it is surprising to see what greater effects arise from the goat's milk, which I suppose is chiefly owing to the patient's retiring to the mountainous parts where the goats live, where, from the purity of the air and the company to be met with, cow's milk, I suppose, would have as much effect; even in consumptive cases, the patient is not wholly confined to milk diet, but may use the farinacea very freely; milk diet, tho' of most importance in consumptive cases, is also proper in every disease accompanied with great weakness, though this debility be not the effect of excessive evacuations; it is seldom, however, used in the first stage, except when a hectic fever accompanies it, because the stomach is very soon affected, long before the strength is much impaired; and hence the milk would be apt to sour on the stomach, as in all gouty complaints; farinaceous substances mixed with wine are proper in the beginning, but after recovering from the first fit of the gout, by living on milk, or farinacea alone, or on a mixture of these, many have been freed from a return of the complaint; the same treatment is proper in all other cases, where, from the state of

the stomach, milk is apt to sour on it, where acidity would be injurious, as in hysterical cases.

Second, we shall now proceed to consider the effects of food as a restorative after disease.

It is evident the most proper food after disease, is what is most nourishing, most easy digested, undergoes the least change after being taken into the stomach, and is attended with fewest bad effects afterwards; the body just recovering from disease is for some time very irritable, and the disease is apt to return if any stimulus is applied, and hence the mildest food is the most proper; the farinaceous substances, therefore, are least liable to objections; other vegetables, and milk, being apt to sour on the stomach. Of the farinacea, the lightest and easiest of digestion are to be chosen, therefore sago and salep boiled in water, with a little sugar, will be found most proper; with these may be joined a little milk or wine, according to the situation of the stomach; if, however, there has been fever, or actual inflammation, milk and wine are to be wholly abstained from, because the milk by souring, and the wine by its stimulus, or by becoming sour, (which it is also liable to do) may occasion a return of the disease. In time we may substitute wheat bread, which is more asceffent; after the stomach can digest the farinacea well, animal food may be allowed, but at first in its mildest form, viz. broth; we may then

proceed to beef-tea, next boiled flesh, or young fowls, then to boiled lamb and veal: In this way bring them gradually to their usual diet; there are some exceptions, however, to this practice; thus, tho' in most fevers the food must be water-gruel, &c. from the vegetable kingdom entirely, intermitting fevers require a full diet in all the stages, and they are aggravated if this is not allowed, during their continuance, and will certainly return if it is not kept up after the fever is abated. It is said that inflammation sometimes accompanies intermitting fevers; if this is ever the case, (which I very much doubt) then a milk diet, as half-way between full and low diets, will be found the best.

In whatever light diætetics may be viewed, they will be found a subject well worth the strictest attention of every practitioner, and of the greatest utility in practice; and I hope the above cursory remarks may call the attention of some gentleman, whose superior abilities may throw further lights on the subject.

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